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ABSTRACT

A 1978 information survey of Association of Research Libraries (ARL) members indicated that at that time, only a few large libraries were planning to freeze their card catalogs and set up alternative catalog forms as a response to decisions made by the Library of Congress to freeze its card catalog, supply access to its collection through an automated system or computer-output-microfilm (COM), and adopt the second edition of the Anglo-American Cataloging Rules (AACR2). This collection of documents on planning for the future of the card catalog contains: (1) selected excerpts of "The Changing Character of the Catalog in America" by David C. Weber (reprinted from The Library Quarterly); (2) general planning documents from Princeton University, Cornell University, and University of California/Berkeley; (3) documents on technical planning/costs from University of California/Los Angeles, the Southeastern Library Network (SOLINET), and Johns Hopkins University; (4) documents on reader/user services from University of California/Berkeley, University of Toronto, and the New York Public Library; and (5) documents on staff participation and education from University of Toronto, the New York Public Library, and Cornell University. A bibliography of journal articles and monographs on the current status and future of library catalogs, a sample program from an information series on COM catalogs from University of Toronto, and selected resources on closing the catalog prepared by Johns Hopkins University are provided. (THC)

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# Planning for the Future of the Card Catalog

## Kit 46

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Jeffrey J. Gardner, Associate
Deanna B. Marcum, Training Program Specialist
P. Grady Morein, Associate
Maxine K. Sitts, Information Services Specialist

## SPEC KIT EVALUATION

The materials in this Kit were collected from a survey of the member libraries of the Association of Research Libraries. They were selected for inclusion here because they are among the best examples received of current management practices in academic and research libraries.

These documents are working tools developed by individual libraries to meet their specific purposes. The materials are not intended to provide models or prototype systems that can simply be copied by other libraries. Instead, these illustrations should stimulate further innovation and improvement in the management practices of academic and research libraries.

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## PLANNING FOR THE FUTURE OF THE CARD CATALOG

The near future is likely to be a period of intensive planning for ARL libraries because of the expected impact of Library of Congress decisions to freeze its card catalog, gain access to its collections through an automated system or computer-output-microfilm (COM), and adopt the second edition of the Anglo-American Cataloging Rules (AACR 2). Currently there is a movement among several leading library groups to postpone implementation of AACR 2, to allow more time for decision-making. However, libraries are still dealing with a major concern — whether it is appropriate to freeze card catalogs, and set up alternative catalog forms. Results of an informal survey of ARL libraries by the University of California/Berkeley indicate that only a few large libraries are definitely planning this action. Most are delaying a decision, pending developments in automation technology, direction from library groups such as the Research Libraries Group or regional networks, and a possible delay in the implementation schedule for AACR 2.

Choices surrounding retention of the card catalog or adoption of a new catalog (e.g., COM, book, on-line) have been difficult to make because of the lack of information on the extent of changes in AACR 2, and because of undetermined funding needs. In addition, decisions involve many levels within and outside the library, and their effects will be highly visible. At this stage, much research library experience and documentation concerns establishing a process for decision making. Most libraries have decided that extensive staff involvement is required for gathering planning information, examining issues, and establishing priorities. One approach which fosters cooperation between technical and public services is the appointment of a cross-departmental task force, which examines issues with the needs of both areas in mind. Many directors also are finding it useful to employ representatives of key user groups and the parent institution because of the need for their commitment to the final decision.

Technical Services. Because of the need for detailed technical information and analysis, many directors have assigned technical services departments major planning responsibilities. Whereas directors may work with their peers and regional or national groups in order to reduce the negative impact of change and allow additional time for decision making, technical services planning often is conducted with the premise that total AACR 2 is imminent. Information regarding catalog formats, authority and bibliographic control, linkages and access points typically is gathered and organized under the direction of the head of technical services. This information includes the strengths and weaknesses of alternative catalog formats, along with costs, needed equipment, and technical skills for conversion and operation.

As they gather information, technical planners are considering not only immediate needs, but longer range concerns and objectives. A catalog which is as accessible as possible and economical to operate, not only currently but in the future, is the goal. Among libraries leaning toward alternative catalog formats, one popular choice includes freezing the current card catalog as of a certain date, and instituting a COM catalog until a fully-automated on-line system can be afforded.

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**User/Reader Services.** Since user support of decisions is considered essential, directors are assuming the chief responsibility for communicating with key representatives of parent institutions and major user groups. Detailed planning typically involves the head of the reader or public services department, staff members, and users. Input from these people -- e.g., use patterns, user likes and dislikes, staff work patterns, reference search techniques and statistics, reference needs -- often is examined by a committee or task force which may prioritize or list user and staff needs. Then these needs are examined in light of the alternative catalog formats suggested by the technical services study, as well as the retention of the current catalog format.

Assuming adoption of an alternative catalog form, planning for reader services focuses on continuing or improving levels of service and assuring acceptance of what will be a visible and major change. There is concern with choosing formats that provide fast, easy access to information and that offer benefits not found in card catalogs, to balance the inconveniences any change is likely to create. For instance, some planners are considering placement of COM catalogs or terminals at locations throughout a campus and on-campus document delivery. Orientation, education, and public relations programs for users, with special attention to faculty members, also are being developed.

**Staffing.** While the ultimate decisions concerning staff reorganization and reassignment of tasks will be made by the library administration, such changes are usually accepted more readily when staff members are aware of planning progress and understand the reasons for changes. An open stance by the library administration can reduce pressures of what could be a threatening process to staff members, who naturally will be concerned about job status. No matter what decision is reached concerning use of the card catalog, staffing patterns will be affected. If the decision is to retain the catalog, some planners believe, more positions will be needed to process cards, change subject headings, and maintain the catalog. If a computerized catalog is begun, the operation of two formats and computerization will create new tasks requiring retraining of filers and revisers and, for at least some time, more staff will be required for user education.

**Needs and Trends.** Proponents of COM or on-line catalogs point to improved bibliographic access, space savings, better physical catalog condition, lower production costs, and easier updating and maintenance benefits. However, planning for such improvements is hampered because experience with COM, book, or on-line catalogs has been limited to a few libraries whose experiences are not necessarily generalizable. The same limitation applies to user studies: Although many libraries agree that such studies are necessary, there are questions concerning the value of applying results of card catalog use studies to another catalog format.

There is an expressed need for obtaining firm cost estimates and for locating funding support for changing the catalog form, since it is generally agreed that implementing any solution (including retention of the card catalog) will prove quite costly. Although some technical services staff warn that it is too late to avoid some inconvenience with the adoption of rule changes, it seems clear that the multiplicity of issues and the widespread ramifications of decisions call for deliberate and comprehensive decision-making, and the movement to postpone implementation of AACR 2 may allow more time for this process. As libraries meet the challenges involved in a possible new catalog format, they are discovering opportunities to develop new management and decision-making skills which will strengthen their capability to deal with an increasingly complex environment.

***The Kit on Planning for the Future of the Card Catalog contains 17 documents (171 pages) from ARL Libraries covering: Historical Perspectives, General Planning, Technical Services, Reader/User Services, Staffing, and Bibliographies. It is available for $7.50 to ARL Members and SPEC Subscribers and for $15.00 to all others from ARL, Office of University Management Studies, 1527 New Hampshire Avenue, NW, Washington, D.C. 20036, prepayment required.

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# THE CHANGING CHARACTER OF THE CATALOG IN AMERICA

DAVID C. WEBER

LIBRARIANSHIP is a sociological art. It uses many techniques and faces many intellectual problems found in many other professions. The fundamental responsibility of librarianship is the systematic provision and effective utility of graphic records. Its basic technique for achieving this goal is bibliography, the major instrument of library services.

"Bibliographic control" is the organization of individual works in an order for effective retrieval. The resultant "bibliographic organization" may take the form of shelf arrangement or classification, but the term is generally used with reference to a bibliography or catalog in printed or card form. "Individual works," as used above, may mean word compositions, paintings, vases, and so forth; and "word compositions" refers to any unit whether one poem, a letter, an article, technical report, or a lengthier work. In one method or another libraries must provide bibliographic control over all graphic records in their custody.

One other distinction should be made. Bibliographic control means providing content accessibility as well as physical accessibility. Contents are made accessible by means of indexing and abstracting services and by individual lists and formal bibliographies. Physical access is provided through catalogs of the holdings of a particular library with book numbers by which to locate each item. Analytics in a library catalog serve both these forms of bibliographic control.

## ORIGIN OF CATALOGS

Techniques for bibliographic control have progressed over the years. A detailed title page, a table of contents, and an index to a single book were the first steps in improving access. When books were few in number, a reader or librarian could know what was in each and where each was shelved. (It has been said that as a rule of thumb any individual can know well 10,000 documents). A list of holdings was useful for inventory purposes, and as collections grew the inventory would also be used to assist in locating volumes. The great libraries of several hundred thousand scrolls in such places as Alexandria and Pergamum must have had finding lists; however, the only known specimen is the "list of cases containing the books on great rolls of skins" graven on the House of Papyrus walls at Edfu, not far below the Aswan Dam. An early union list of holdings in English monastic libraries was compiled to improve access toward the end of the thirteenth century. During the nineteenth century, when the publications of journals and magazines increased markedly, libraries had the added problem of achieving subject indexing of articles. As individual American libraries tried to control this sudden increase in individual works, several lists were published, notably the comprehensive general indexes compiled by William F. Poole in 1848, 1853, and 1882. Analysis followed of volumes of essays and other compilations, resulting in *The A.L.A. Index* of 1893. Then five libraries prepared for some 250 learned journals analytics which the American Library Association began publishing on cards in January, 1898. The H. W. Wilson Company later took over these activities for its series of indexes. Similarly each year we find libraries, individuals, or firms compiling such works as an index to *Articles on American Literature, 1900–1950* (Duke University Press, 1954), an index to *Articles on Antiquity in Festschriften* (Harvard University Press, 1962), and the *Meteorological and Geoastrophysical Abstracts* (American Meteorological Society, 1950——). In this fashion libraries have been increasingly relieved of much of their work on content accessibility.

The analysis of content has always been a concern of libraries, though rarely have individual budgets permitted much to be accomplished. Reliance can be placed on published analysis by others wherever it exists. The control of physical accessibility, on the other hand, must remain a dominant local concern as long as libraries seem impelled to cater to local nuances of classification or have material not part of a national control program.

A catalog should be designed to answer questions as to what books are in the library—questions of physical accessibility. The best catalog answers the greatest variety of questions with the greatest ease for the least expense. For reasons of economy a library may refuse to answer certain types of inquiries and may today rely on published lists, indexes, abstracting services, and bibliographies for considerable support.

The physical form taken by catalogs has varied over the years. Before reviewing the major forms that have been used, it may be well to suggest the objectives which have generally controlled these forms.

The overriding influence has been the desire to provide ease of access for one or more of several requirements:

1. The local need to find books in the collection by author, title, subject, or form
2. The need to have the catalog available in several local locations
3. The need to add or change records frequently to keep the listing up to date
4. The belief that scholars will welcome widespread availability of the catalog as facilitating their work.

A secondary influence is financial. This seems to control most decisions. It may dictate a brief-entry typed on sheets, or it may permit a handsome publication by virtue of a subsidy. Some local requirements can be met together with national interests if the production can be a union list or can otherwise be a sound commercial venture. Library catalogs will have a wide variety of combinations of access requirements and financial strictures.

Lacking regular funds for purchasing books, libraries often relied on gifts for the majority of their acquisitions.[1] It seems evident that catalogs made for inventory purposes were early seen as an effective means of acknowledging and soliciting gifts. In the Colonial period these motivations were dominant; however, as time progressed, the need for an index to the collections came to be the primary motive for catalog preparation.[2]

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[1] Louis Shores, *Origins of the American College Library 1638–1800* (Nashville, Tenn.: George Peabody College, 1934), p. 109; the point also seems clear in Jesse Shera, *Foundations of the Public Library* (Chicago: University of Chicago Press, 1949), p. 201.

-- Sections omitted --

### EFFECT OF NEW TECHNIQUES

At this point one may ask what has been the effect of the newer printing techniques on the ease of access to information. For most applications, the card-form catalog is unsurpassed for use in one location. The book-form catalog is portable and most convenient to scan. A microfilm catalog is probably as rapid to use as the card catalog once one is accustomed to the machine, especially if it is a catalog on microtext

cards or sheets. The microform catalog is not portable, is not convenient to scan, is difficult to update, and requires a rather expensive projector. The automatic viewing screen with keyboard control is not portable and is generally very expensive; however, it can be operated rapidly and can be designed to produce the document itself as well as the index reference. This also applies to computers which give libraries a most powerful bibliographic tool once they can afford to use a complete computer and leave the data in its store—as with Medlars—rather than use it only a few moments to arrange and print out a sheet catalog.

Yet in considering the ease of access it is well to remember that by far the greatest aid to access is the existence of a comprehensive collection of publications. Without the literature behind it, no index device can produce satisfaction.

A second point is that the degree of bibliographic analysis of the literature —the number of useful author, title, and subject entries—is also more important than is the form of the catalog. The most sophisticated electronic index is only as good as the entries it has been fed. Given equal collections and equal analysis for entry, then the form of the catalog and its organization and editing will produce different working conditions. The success in information retrieval is not dependent on the form of the instrument, yet the form will have a marked effect on convenience and speed.

This point may be developed through reference to the unique card catalog formed by the Uniterm system of coordinate indexing. In this form of catalog, cards for each major word of the document's chosen subject phrase list

the document numbers arranged by the last digit. When cards are matched for the terms used to describe the subject of inquiry, numbers appearing under all the chosen terms will produce relevant documents. This catalog apparatus has gained specialized popularity during the past dozen years. The point here to be noted is that its ability to extract information from a subject approach has been found to be at least equal to three other common cataloging methods using traditional card catalogs.[35]

The choice for a library catalog may be one of the following: the 7.5 × 12.5-cm card, punched tabulating card, edge-notched card, manuscript book, sheaf, printed book, roll microfilm, microtext sheets or cards, magnetic tape or wire, and other electronic devices such as magnetic drums. Each form may meet certain requirements better than the others. So the degree of convenience and basic utility of each form would depend on the relative importance of such additional factors as a requirement for portability, need for copies in several locations, number of simultaneous users to be accommodated, importance of currency, requirements for flexibility in intercalating new entries, the importance of browsing, and the importance of cost.

There is also the degree to which the cataloged collection changes, for in a stationary collection a card file offers no advantage. Where the list evolves slowly and rather uniformly with copies needed in many locations, a book with pocket supplements and periodic reprinting may be ideal, as with the *Corpus Juris Secundum*. Where changes are of little importance, availability must be widespread, and costs are of prime importance, then a microtext version may provide entirely adequate ease of access. What may provide the best solution for a botanical scholar in a Boston museum may be most awkward for a group of aeronautical engineers in Pasadena laboratories. Each form of catalog may offer suitable ease of access in cases where all requirements are compatible.

### CURRENT DEVELOPMENTS

It may seem dubious that any further form of the library catalog will gain wide popularity.[36] Still, the use of electronic devices combining features of microfilm projectors, language laboratories, and teaching machines may still in special library situations lend some novelty to librarianship in this century. In the past three years high-speed computers have been used in a number of experiments with library records. Well known are the processing studies at the University of Illinois, Chicago, the serials catalogs produced by the University of California, San Diego, and the Washington University Medical School, as well as the first regularly published permuted index *Chemical Titles*, the catalog of *Dissertations in Physics*, and the *Index Medicus* plans for the spring of 1964. The brilliant Medlars program for *Index Medicus* at the National Library of Medicine is the first example of a truly automated cata-

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[33] Robert L. Patrick, comments at the Conference on Libraries and Automation, Warrenton, Virginia, May, 1963.

[34] For example, see the parameters of operation in Joseph Becker and Robert M. Hayes, *Information Storage and Retrieval* (New York, 1963), chap. xii.

[35] Cyril W. Cleverdon, *Aslib-Cranfield Research Project; Report on the Testing and Analysis of an Investigation into the Comparative Efficiency Indexing Systems* (Cranfield, England, 1962), esp. chap. ix. Co-ordinate indexing is also being mechanized in the Termatrex equipment series which speeds the co-ordinate determination of document numbers.

[36] C. D. Gull found no "trend towards any physical substitute which will replace the card catalog in the near future as the basic record of each library" as reported in his study of "Substitutes for the Card Catalog," *Studies in Coordinate Indexing* (Washington, D.C.: Documentation, Inc., 1953), Vol. LXX, reprinted with slight revisions in *Library Trends*, II (1953), 318.

log. The end result in each case mentioned is a book catalog of traditional appearance.[37]

However, current research is directed toward applying existing computer technology in "systems." A description of a possible library catalog of the future was presented at the Conference on Libraries and Automation of last May. Central to the operation of the mechanized library, as described there by Don Swanson, would be a console machine—an electronic system in lieu of the tangible catalog. The user console would consist of a keyboard for search-and-select action, a cathode-ray-tube display screen with the tube in direct communication with a computer storing a national union catalog, a microfilm viewer with enlarger-printer and an intercom to permit consulting of a reference librarian.[38] Computer technology holds promise to revolutionize many aspects of library operation in the near future.

Bibliography remains basic to librarianship and documentation. Library concern with bibliographic control is not fundamentally different now from what it was in previous centuries. For content accessibility, libraries will rely to the greatest degree possible on published lists and national services; given unstandardized collections, libraries must continue to provide local physical access.

The character of the American library catalog has not changed in other than minor respects since the beginning of libraries in this country. Some major changes seem certain in the years ahead.

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[37] An informative general survey is John Markus' "State of the Art of Published Indexes," *American Documentation*, XIII (1962), 15–23.

[38] Don R. Swanson, "Dialogues with a Library Machine" (paper delivered at the Conference on Libraries and Automation, Warrenton, Va., May, 1963 [35 pages]). (Multilithed.)

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# COMMITTEE TO STUDY THE FUTURE OF THE
# PRINCETON UNIVERSITY LIBRARY CATALOGUE

## REPORT

Barbara Brown, Chair.
Peter Cziffra
Dolores Hoelle
Susanne McNatt
JoAnn Miller
Dorothy Pearson
Karin Trainer
Eleanor Weld

May 31, 1977

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## INTRODUCTION

The Committee to Study the Future of the PUL Catalogue was appointed by the University Librarian in November, 1976,and was asked to perform the following tasks:

(1) Review the literature and gather data through correspondence and visits to other institutions, especially the Library of Congress; also to contact RLG and the ARL Task Force on the Future of the Catalogue.

(2) Determine options for PUL, including the anticipated impact of possible changes; seek to develop cost data; take into account problems arising from catalogues in departmental libraries as well as methods for incorporating the cataloguing of earlier imprints and serial publications.

We began our work in late December. At the first meeting three stages of study were identified:

(1) Literature search;
(2) Collection of facts and figures about PUL catalogues;
(3) Review of catalogue planning in other institutions.

Key background information was obtained from the papers presented at the ARL meeting in January, 1975. The ARL Task Force on the Future of the Card Catalogue ceased to exist after that program presentation. Its successor is an advisory committee to the Library of Congress established by William Welsh, now Deputy Librarian. Recent correspondence indicates the committee has been inactive for over a year.

In addition, reports were requested from UCLA and UC-Berkeley where study groups had been working since 1973. Committees were appointed to study the future of the card catalogue by both institutions in response to the Library of Congress's announced intent to adopt desuperimposition in 1976, a change which is now scheduled to appear with the adoption of the revised AACR in 1980. The Princeton committee's decision was to try not to repeat work done by these other groups, but instead to use their findings to support our own investigations. For example, using the UCLA bibliography as a base, we picked up the literature search in 1974 where theirs left off. Also, three members of our committee sampled the catalogues in several of the various special collections and branch libraries, adapting a questionnaire designed by UCLA for our own use. The results of that survey have been very briefly summarized in the next section on the status of card catalogues at Princeton.

We established contact with similar committees at Cornell and Yale, interestingly enough both of which are chaired by the person in charge of public services. The Yale group has recently completed an inventory of card catalogues; Cornell is involved in analyzing the use of its card catalogue.

Early in our work we agreed that staff education was one of our purposes. In mid-March we conducted two open staff meetings attended by approximately 100 people to share with our colleagues some of the background information we had accumulated by that time.

In April we met at the New York Public Library with the Yale committee. NYPL closed its public catalogue in 1971 and now relies on a book catalogue for access to current material. An extensive rehabilitation program has been launched to prepare the retrospective file for filming. The presentation, coordinated by Paul Fasana (Chief, Preparation Services) gave us much needed firsthand information regarding the problems to be considered.

The committee sees its report to be the basis for future catalogue planning at Princeton. We have summarized present card catalogue activity and outlined the anticipated impact of LC decisions on that activity; we have reviewed the alternatives for card catalogues; we have described the present use of OCLC at Princeton. While we did not conduct a use study ourselves, we have collected the most important findings from studies in the literature.

We have surveyed by telephone the state of catalogue planning activity in eleven ARL libraries; those results appear in Appendix I. In summary, 7 of those institutions have decided or are leaning toward closing the catalogue.

All of the above information has been included so that readers may share an understanding of what led us to our recommendations.

## I. THE STATUS OF CARD CATALOGUES AT PRINCETON

During the past four years, the units now comprising the Catalogue Maintenance Section have produced roughly 1,000,000 new catalogue cards. In the current fiscal year, the Section's monthly output has averaged 28,000 cards which, if measured, would equal 23 linear feet. About 16 linear feet of these cards are routed to the Public Catalogue, which requires the equivalent of 13.3 new drawers per month in order to accommodate them. By July 1, 1977, the file will contain 4,750,000 cards, exclusive of order slips and guide cards. As all regular readers of the Library Council minutes know, the Public Catalogue is on the verge of requiring a major expansion project. Additional cabinets will be moved in, displacing the Reference Division staff office, and once again we will go through the time-consuming procedure of shifting all of the cards. This chore was last performed as recently as 1972, when it required about 500 hours of staff time to redistribute approximately 3.5 million cards and slips.* Much of this work was done by support staff, but a report written shortly after the project's completion suggested that future expansions include more professional support. Adding this latter consideration to the fact that staff salaries have risen significantly since 1972 and there will be an extra million and a half cards, etc., to be dealt with this time, one is forced to believe that the cost of the upcoming project will be much higher. Even if we can continue to pour money into this kind of activity every few years, the day is going to come when we will run out of floor space.

Even aside from the problem of catalogue expansion, the task of keeping so many small pieces of paper in order and up to date is necessarily immense.

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* After the actual shift was finished, another 230 hours were spent producing new drawer labels.

The formal organizational framework for the Public Catalogue is provided by filing rules developed locally in the 1920's. Since the rules are homegrown and resemble the standard ALA and LC rules only partially, each new user, no matter how experienced with catalogues at other institutions, needs detailed filing instruction if he or she is to make successful use of our catalogue. Users who do not receive a detailed orientation but attempt to rely on logic to determine the filing structure are likely to fail as logic, unfortunately, has very little to do with much of our filing code. The situation is further complicated because Princeton's rules were written too early to take non-Western names fully into account; as a result, filing practice in these sections has always been confused, and a patron could read the rule book several times and still require professional guidance. These difficulties have by no means escaped the attention of either the Technical Services or Reader Services staff. However,. no one has yet been able to devise an affordable system for refiling several million catalogue cards according to a more coherent filing code.

Just as the Public Catalogue is replete with filing peculiarities, so too are there local processing practices which interfere with patron success. To enumerate all of them would be impractical; the following partial list is intended to suggest the scope of the problems:

(1) For some of the oldest books, there is no main entry. Main entry information can be obtained only by consulting the 1920 Princeton University Library Classed List shelved in DR.

(2) Some of the old oversized books do not carry the special size designator in the call number; rather, the reader must infer that the book is in a special shelving area (e.g., the q's) from the collation.

(3) In 1941-1942, almost all of the "scientific" subject cards were removed from the Public Catalogue as a space-saving technique. They were never reinstated.

(4) During the 1950's, title added entries were routinely not made in order to save processing time and drawer space. Unfortunately, patrons used to relying on the title access provided by our oldest and newest cataloguing do not realize that it is unreliable for a middle period and often assume that we do not own materials that are indeed housed in our collections.

(5) It is no longer possible to keep added entry and subject cards up-to-date as far-as-library holdings, the existence of added copies, and bibliographically useful notes. The only reliable source for this data is the main card, but many patrons have not grasped the concept of the main card. Even if they realize that they should consult it, they may not know how to locate it.

The number of changes made daily to cards already in the Public Catalogue is staggering, and this constant flux must be taken into account during any discussion of catalogue freezing versus closing.* In each of the past four years, the Catalogue Maintenance staff has handled an average of 3,900 withdrawals, 3,400 transfers, 4,300 added copies, and 2,800 added (continuation) volumes, resulting in adjustment to approximately 49,000 Public Catalogue cards annually. This does not include any of the hundreds of corrections made each month in an effort to keep abreast of LC's changes in subject headings, form of personal and corporate names, etc. There is every reason to believe that these LC-initiated changes will escalate dramatically in the days ahead, further straining the staff's ability to keep the file current and orderly.

The Catalogue Maintenance staff is presently budgeted for about 20 FTE with an annual salary expenditure of approximately $150,000, excluding benefits. In addition, the Section receives the equivalent of 2-3 extra FTE in student help and a considerable amount of assistance that is begged, borrowed, or stolen from other units in the Catalogue Division. Nonetheless, the staff is almost always behind in some aspect of the catalogue maintenance process because of the increasing number of tasks to be performed coupled with the increasing size and complexity of the file. It is clear that because of the Public Catalogue's phenomenal growth rate, it takes slightly longer every year to locate, pull, or file a card. At the same time, the people assigned to these particular clerical duties are expressing more and more dissatisfaction with their work, finding it repetitious and boring. Their turnover rate is high, and the pool of applicants qualified for and interested in these positions is low. Training time is extensive, again because of the intricacies of the Public Catalogue file. From the supervisory standpoint, balancing the desires of the staff with the volume and kinds of work to be done is extemely problematic, and we seem to be in a no-win situation.

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* Because these two terms are used so often in the context of the problem we are addressing, a clear understanding of the usage is helpful. Closing the catalogue means no longer adding to the catalogue newly-produced cards for a specific set of titles. We could, for example choose not to add cards for titles catalogued after a certain date or we might decide not to add cards for titles published in 1980 or later. Under the latter policy, the file would continue to grow but at a much reduced rate. In either case we could continue to up-date the cards in the file by correcting location information for titles that have been transferred, by noting additional volumes received in multi-volume works, and by correcting errors in cataloguing content as they are discovered. If one were to freeze the catalogue, say in the purpose of publishing it in book form, one could no longer add new titles or register any up-dated information for titles listed in the catalogue.

The problems that we face and the expenses which we incur with the Public Catalogue are repeated to at least some extent in the branch catalogues as well. Each month, we distribute about 9,000 cards to the 37 or so active catalogues scattered around the campus. These catalogues vary widely in regard to size and the amount of care that they receive. The filing conventions in the outside catalogues are not strictly uniform, and many of them include materials processed locally and hence not recorded in the Public Catalogue. It is thus very difficult to generalize about these catalogues, except to say that their existence necessitates much duplicate work (making two sets of catalogue cards for one book, filing two sets of cards for one book, adjusting two sets of cards in instances of entry change, adjusting two sets of cards when updating holdings, etc.). One could also safely point out that with the growing interdisciplinary nature of many academic subjects, most branches and special collections could serve their users more easily if they had immediate access to catalogue records for books housed in collections other than their own. As long as we are tied to the 3 x 5 card as the principal carrier of bibliographic data, however, we are not likely to witness this change.

## II. IMPACT OF LC ACTIVITY ON PUL CATALOGUES AND CATALOGUING SYSTEM

In addition to the critical status we are approaching in our card catalogues at this point in time, there is another factor that precipitates a reassessment of our catalogues and cataloguing system--the activity at the Library of Congress.

On or about January,1980, LC will put into motion some major changes that will have a radical effect on its widely-used cataloguing products, such as catalogue cards and the National Union Catalog. In part, the changes stem from LC's decision to close its card catalogues in 1980, a decision based on the growing problems of maintaining their large card files, which are similar in nature to our local problems discussed above, and from their inability to adopt desirable changes in cataloguing rules within the framework of the existing LC card files. Another factor is LC's joint agreement with the national libraries of Canada, Great Britain, and Australia to adopt in full the provisions of the second edition of the Anglo-American Cataloguing Rules (AACR). The AACR is scheduled for publication in 1978 and LC expects to begin to use it in current cataloguing in the fall of 1979.

Since LC cataloguing data forms the basis of 75-80% of our cataloguing at Princeton we need to understand the impact of these changes on the PUL catalogue and cataloguing system.

First, LC plans to change all name headings for persons and corporate bodies used in its cataloguing to the form called for in the first edition of AACR. This action is popularly known as "desuperimposition", to distinguish it from the practice of "superimposition" followed at LC for the past ten years. Under superimposition, name headings newly established in LC's catalogues conformed to AACR prescribed form but, in the case of headings previously used in LC's catalogues, the form already in use was superimposed. AACR, for example, called for an institution to be entered directly under its name: University of Chicago, while the form in use at LC was: Chicago. University. The latter form was retained by LC in all subsequent cataloguing.

LC has estimated that a change to *AACR* form would affect as much as 8% of all existing name headings.

The second edition of *AACR*, now available in draft form, reveals additional changes in headings for persons, such as a reversion to the use of forename initials rather than full names if that is the form the author uses in his works. Headings for corporate bodies may undergo change as well, with additional parts of the hierarchy being introduced for bodies entered subordinately under a parent body, and uniform headings for works such as laws altered significantly. These changes will affect an additional, unknown proportion of headings in our catalogues.

The second edition of *AACR* specifies additional access points, i.e., secondary entries, for some titles. While this is a definite advantage for the user of the catalogue, over the long run it would have a significant impact on the already voluminous annual output of our card production units and on the growth of our catalogues.

Other changes being considered by LC, concurrent with the closing of its card catalogue and adoption of *AACR* for descriptive cataloguing, relate to subject headings. Some recent changes, for example, from direct to indirect subdivision under a topic, have already necessitated the adoption of special policies and procedures at PUL. The changes planned for the future are presumed to be even more substantial. In this context it should be noted that LC is investigating the use of a wholly new system for subject cataloguing for future use in its machine-readable catalogue records. This system, known as PRECIS (PREserved Context Indexing System), should provide a better approach for the user, but the length of each subject entry generated under this system would weigh against its use in a card file. It is designed primarily for machine manipulation. While it is by no means settled that LC will abandon the use of its traditional subject headings in its cataloguing data intended for distribution to libraries at large, a library tied to a manual card file would not be in a position to take advantage of PRECIS.

Finally, it seems likely that LC will introduce desirable change in its practices whenever its new automated cataloguing system will accommodate such change. The consensus is that we will see changes occurring far more frequently than we have in the past and our job of keeping local files compatible will be that much more difficult.

To cope with desuperimposition alone, we would need to be prepared beginning in 1980 to deal with 2,400-4,800 conflicts between local headings and headings on LC cataloguing records each year for several years, if we choose to maintain our existing card catalogue. The commitment in staff time, both cataloguing and clerical, would be substantial.

## III. AUTOMATED CATALOGUING AT PRINCETON: The status of the OCLC operation

Princeton has been relying on OCLC for a portion of its card production since late 1974. About two-thirds of our catalogue records are now being printed by OCLC, a rate which has been stable for some time. OCLC's inability to provide cards for serials and non-Roman alphabet items accounts for some of the cards which we must still produce in-house. A large number of microform set analytic cards that we have acquired from various sources receive finishing work in our Typing Unit - an inexpensive process - rather than being routed to the OCLC Unit for input as new records - an expensive process. Another sizeable category of records that we continue to produce locally is the sets for MARC records which we locate in our depository file but cannot find in the OCLC data base, owing to one of their long-standing software problems. Princeton, of course, has the option of coding these records and adding them to the data base, but we have felt in the past that it would be cheaper, at least in the short run, to process the unit cards in the traditional way.

Each time that OCLC prints a set of cards for us, it also copies that record in its machine-readable form onto a magnetic tape. OCLC recently offered to sell us the tape version of all of the records that we have produced through their system to date, and we accepted, asking to be supplied with tapes for current cataloguing transactions as well. These tapes, which have not yet begun to arrive, have the potential for being the core of any computer-generated catalogue alternative that we may adopt in the future, but there will be difficulties with them that we should start to address now. Three major problems are outlined briefly below:

(1) The tape records received will reflect the cataloguing on the day that the cards were originally ordered and will not show any of the alterations made later. As is mentioned elsewhere in this report, we change tens of thousands of cards each year, but all of this work is done manually because a serious design flaw in OCLC's terminal display makes it extremely time-consuming to do via the terminal. To make sure that the records in our tape file remain up-to-date, we must either be willing to spend a significant amount of staff time doing our Changes and Corrections work through the CRT's (and thus making a new tape record as well as corrected cards) or seek to develop a local system for updating our subscription tapes, possibly through the University Computer Center. The third option is to be prepared to do a massive editing job when, and if, we are ready to get a new form of catalogue off the ground.

(2) Our tapes do not yet include any holdings information (i.e., number of volumes or copies) because using the terminal to keep the record current is such a cumbersome procedure. The alternatives are as above; we can decide to do the constant terminal updating, viewing it as a long-range investment, or we could develop some method for adjusting the tapes locally. We could also decide to do it later.

(3) At present, a third of our catalogue records are not being captured on OCLC's tapes. The handling of serial and non-Roman alphabet materials must continue to receive local processing, but we might want to reconsider our decision to route MARC depository cards and microform set analytics to the Typing Unit rather than the OCLC Unit.

## IV. REVIEW OF ALTERNATIVES FOR THE FUTURE OF THE CATALOGUE

There are two basic alternatives between which PUL must choose in the next three years:

(1) Attempt to leave the existing catalogue open and find some means of integrating the new headings with the old, or

(2) Follow LC's example, and close our card catalogue.

### A. Maintain existing card catalogue

If the first option is chosen, a decision must be reached on a mode of integrating the anticipated changes in headings for subject and names. There are three solutions to this problem: First, we could attempt to retain the existing form for headings which have already been established in the PUL catalogue, for example "Chicago. University." If, in 1980, we receive an LC card where the desuperimposed form of the heading, "University of Chicago" is used, we could correct the entry on the new card to agree with local usage. As it is anticipated that all of LC's cataloguing will be in machine-readable form (MARC) by 1980, and since we will presumably have access to MARC records through OCLC or a comparable network, the revised headings could be corrected on-line via CRT terminals and cards could be ordered with headings printed automatically in the PUL preferred form. This solution does not sound too unrealistic when broached in this fashion; however, when one considers the fact that 75 - 80% of PUL's cataloguing is based on LC copy, it becomes apparent that this solution would involve much more editing of LC copy than is currently being done, and consequently would require a larger staff to process the same number of titles.

A second way of coping with anticipated changes without actually closing the card catalogue would be to do what we are now beginning to do with some subject headings, that is, to connect the older form to the newer form with sophisticated types of "see also" references, so that, for instance, under "Chicago. University." the user would find a reference which might read:

> In 1978, the heading for CHICAGO.UNIVERSITY. was changed to UNIVERSITY OF CHICAGO. For works processed after that date, see the later form of the heading.

(The converse form of the reference would, of course, be placed in the newer file.) As John Rather of the Library of Congress pointed out in a paper delivered in April 1972*, this method is essentially equivalent to maintaining two catalogues within one physical entity, and as time goes on, the number of cases in which a user has to look in two locations to get a full display of information will increase. The solution has other drawbacks: where does one place that very essential reference which will lead the user back to the other half of a split file? How many references must one place in a file to make sure the information isn't overlooked? And how can the librarian be sure the user is sophisticated enough even to understand what the reference implies?

A third possibility is to correct the cards under the out-moded heading to the new form and to re-file them in the new position in the catalogue. In the case of lengthy files, it might be possible simply to re-file the old cards in the new position without correcting the headings using a guide card at the beginning of the file. Although extremely costly in staff time, this appears to be the solution that would maintain the highest level of cataloguing integrity for the user. A simple "see" reference rather than a complex explanatory reference could be filed under the old heading, making it much more likely that the user would locate the reference and comprehend its message. For the correction of one file: "Chicago. University" 20 cm., or approximately two-thirds of a drawer of cards, would need to be re-filed. In some instances the change in form of heading may necessitate correcting secondary entry cards for each of the titles involved as well. Such an operation would entail massive shifts of entire blocks of the existing card catalogue, causing many temporary disruptions in the use of the file. It should be born in mind that such shifts, with the related correction work they entail, would have to be carried out in each branch as well.

*Angell, Richard S., and John C. Rather. "The Library of Congress card catalogs an analysis of problems and possible solutions." In *The Future of Card Catalogs: report of a program sponsored by the Association of Research Libraries, January 18, 1975*. Washington, D.C., Association of Research Libraries, 1975, pp. 46-57.

Despite the somewhat overwhelming nature of such an endeavor, other large institutions (Berkeley, UCLA) which have undertaken detailed studies of the various alternatives for dealing with desuperimposition have concluded that if one were to seek to maintain an existing card catalogue after desuperimposition, one would choose this third approach.

In any attempt to incorporate new subject headings it should be noted that many changes will not involve a simple one-to-one correspondence with a new heading, but will require close scrutiny of the body of the catalogue entry on an individual basis before a new heading can be assigned and the card re-filed correctly.

## B. Close existing card catalogue

If, upon further study, none of the above options proves attractive or feasible, we may decide (as have LC, NYPL, Toronto, and a number of other large research libraries) to close the existing card catalogue. The decision to close, however, is just the first step in a series of decisions, as illustrated below.

### 1. Criteria for inclusion of records in the new catalogue:

Once we decide to close the present card catalogue, we must decide on criteria for selecting what is to go into the new catalogue. There are two fundamental approaches to this issue:

(a) Processing date. The simplest solution, and one that has proven successful at NYPL, is to select an arbitrary processing date as a cut-off for inclusion of records in the older, or retrospective catalogue. This is a solution which is fairly easy to implement and one that obviates the need for cataloguing staff to work concurrently with two quite different sets of cataloguing rules. This method has been criticized as being inconvenient for users, who will never be sure when a particular item was processed, and who will always have to look in both catalogues to be sure essential information has not been missed.

(b) Imprint date. A cut-off imprint date is considerably more difficult to implement. Although it does provide the user with a clue for determining which catalogue to approach, we must give close scrutiny to the value of this assistance, as a decision to close by imprint date would imply that the existing catalogue would never be "closed" and that two sets of rules would have to be maintained indefinitely--a costly and not very desirable alternative. This would also mean that it would be impossible to "freeze" (i.e., cease to make any additions or changes to the cards) our catalogue at some future date, therefore impossible to permanently replace our card file with a microfilmed or photographically produced book catalogue. This does not seem to be a very serious issue at the moment, but as we approach the final years of the 20th century card deterioration will become much more severe than it is now, making such a "freezing" highly desirable.

## 2. Form of the new catalogue:

The other difficult choice raised by the decision to begin a new catalogue is "what form shall the new catalogue take?" There are several options available, and serious consideration is warranted.

### Card Catalogue

We may decide to begin a new card catalogue, using only desuperimposed headings and whatever code is current at the time we begin. A new catalogue would be considerably easier to file into than the retrospective catalogue with its approximately 4.8 million cards. By choosing a card catalogue, we would not have to wait until machine-readable formats are capable of handling Cyrillic, ideographic and other non-Roman scripts, but could interfile both manual and machine-produced records. A chief disadvantage of the card catalogue is that it is inhospitable to the kinds of changes in cataloguing rules and practices with which we are likely to be continually confronted. The life expectancy of cataloguing codes seems to be growing shorter, with the ALA rules lasting 18 years, the AACR only 11 years, and grave doubts prevailing as to the longevity of the not-yet-published AACR2. Other disadvantages of a card format include lack of available space, the need for manual filing and updating, and substantial dollar investment in housing cards (estimated cost for 14, 60-drawer units is $22,000 to provide 3 year expansion).

## On-line catalogue

If the Catalogue Division is able to reach its goal of capturing all current bibliographic data in machine-readable form by 1980, there are several alternatives to the card catalogue from which we may choose. The most desirable form of catalogue and the "catalogue of the future" that has received considerable attention in the literature, is that which is available instantaneously and accessible from remote locations-- the on-line catalogue. Many libraries, both large and small, are currently producing catalogue data on-line within technical services departments, but there are no operational models in large research libraries in which the catalogue data is consulted by the user in an on-line mode. In almost every case, the public catalogue is still being constructed off-line, in a batch mode, such as the cards produced through the OCLC system. The National Agricultural Library seriously considered closing its catalogue and offering on-line access in 1976, but after a study of the proposal was made, it was decided that such an option would not be feasible before 1980. Ohio State University has announced its intention to begin allowing on-line access to the public in 1978. In recently published reports, study groups at both Berkeley and UCLA have called for the implementation of on-line systems by 1980; however, system details are still in the planning stage.

While a considerable number of large research libraries have announced that the on-line catalogue is their common long-range goal, the reason for the delay in implementation is all too evident: the cost is simply prohibitive. In a recent article*, H. D. Vervliet estimates that for a large research library which might be expected to provide 80 hours of access per week to a file of a half million catalogue entries, the cost for constant connection and access to a main-frame computer would be between $200,000.00 and $300,000.00 per year, exclusive of software or maintenance fees. CRT terminals, at approximately $2,000.00 per terminal would total about $100,000.00, if one assumes a large academic library would need about 50 terminals, or one for every 200 students enrolled. This is the number that Berkeley has anticipated for public use alone. Computer storage, at the rate of $.10 per entry, would total $50,000.00 per year for the conjectured half-million entries. Vervliet suggests that on-line access becomes economically feasible only within the context of a network comprised of 20 to 30 members. The considerations outlined above strongly suggest that we must watch closely the development of existing networks, in particular OCLC, RLG (Research Libraries Group, composed of NYPL, Columbia, Harvard, and Yale) and BALLOTS, a system which was developed for the Stanford University Library.

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* "Alternative physical forms of catalogues in large research libraries," International Cataloguing, Jan./Mar.77, pp. 6-8

As of this date, OCLC does not provide specific access to Princeton's holdings nor the comprehensive search strategy equal to or beyond that provided by the card catalogue. RLG is in the process of evaluating OCLC, BALLOTS, the University of Chicago system and the University of Toronto system to see which may best meet the needs of its members. BALLOTS is now being used by some California libraries including UC-Berkeley. In addition to being considered for network development in California, BALLOTS may broker its services to other library consortia in the country.

3. Consideration of an interim catalogue:

If we decide that an on-line catalogue should be the long-range goal for PUL, and if we decide that our present card catalogue should be closed before we are able to implement such a system, it will be necessary to choose an interim form of catalogue to bridge the gap between the closing and the advent of an economical on-line system.

The pros and cons of selecting another card format have been discussed earlier. Other alternative methods of file display include the book catalogue, produced either by line-printer output or magnetic tape driven photocomposition, and COM, or the Computer Output Microform catalogue. Both are examples of catalogue data being created in an on-line mode with the catalogue itself being produced in a batch mode. Vervliet, in the article cited above, estimates that these batch systems are presently from 6 to 10 times cheaper than on-line systems.

## Book catalogue

An outstanding example of a computer-produced book catalogue is the one issued by the New York Public Library. After spending approximately $4,000,000.00 on systems development, NYPL closed its card catalogue in December, 1971 and launched its photocomposed book catalogue. The basic catalogue set is cumulated and reissued on a yearly basis, with bi-monthly cumulated supplements; thus, an NYPL patron may have to look in three locations for catalogue information: the retrospective card catalogue, the basic volumes of the book catalogue, and the supplement. NYPL employs computer photocomposition to produce its catalogue, resulting in an attractive page, with print size somewhat smaller than that normally found on a 3x5 card, and a variety of type fonts. Line printer output is a more economical, although considerably less attractive method if 10 to 20 copies of the catalogue are needed. Photocomposition can be cost-effective only when more than 500 copies are required and NYPL can justify a large number of copies through the sale of its catalogue to other institutions. It is of some interest to note that in the four years since its conception, the NYPL book catalogue has grown to a total of 38 volumes, a size sufficient to force the serious consideration of a microformat for future cumulations.

## COM catalogue

COM is less expensive than either of the two forms of book catalogue. A microform catalogue can be generated by a commercial firm from machine-readable data such as that recorded on the OCLC archival tapes. The file itself occupies very little space and can be reproduced at surprisingly little cost, so that the average patron could afford to purchase his or her own copy. The chief disadvantage of microform is that it requires the use of special equipment for reading and the library clientele would surely require more re-education than would be necessary with a book catalogue. Furthermore, the microform cannot be manually annotated as can a book or card catalogue and changes involving added volumes, transfers, reclassification, etc., would not show up until the entire catalogue had been recumulated.

The University of Toronto possesses the most complete and perhaps most publicized COM catalogue. Toronto initiated a conversion project in 1965 and currently has most of its retrospective catalogue in machine-readable form (non-Roman entries excluded). The COM catalogue consists of 5 reels of microfilm and a cumulated monthly supplement on fiche. Toronto uses the ROM 3 reader (estimated cost, $5,000.00 each) in areas of high catalogue use. This remarkable device automatically selects and changes reels and will rapidly advance the film to the vicinity of the alphabet the patron wishes to survey. In low traffic areas, Toronto makes both portions of the catalogue available on fiche, to be read with a less expensive fiche reader. Copies of the catalogue can be scattered in all parts of the library as they are needed: study areas, stack areas, etc., as well as in non-library campus locations. User response seems to be good, although, as of the writing of this report, no formal user study has been published.*

4. Relationship of the old and the new catalogues:

Setting up a new catalogue in any form implies that our files will be split. While this poses special problems for us in dealing with serials and other continuing titles that are in a constant state of flux, there are more general problems for staff and users alike in functioning within such a system. We would need a vigorous training system and an ongoing orientation program to cope with the situation even if the new file is a card catalogue. If the new catalogue is in a microformat or is a book catalogue, the re-education would be more difficult and more costly to mount. If we could recatalogue our existing records to make them compatible with the headings in the new file, the problem would be lessened, but it is highly unlikely that we will ever be capable of such a conversion, given our current technology and growing budgetary constraints. Should we opt for a new catalogue produced from machine-readable data, there is some possibility that conversion of the old catalogue to machine-readable form and a merge of the two files might be accomplished. At a recent ISAD Institute, Joe Howard of the Library of Congress noted that technology is making great strides in the area of optical scanning, and LC is considering a combination of optical character recognition (OCR) techniques and format recognition programs for converting its retrospective files. If this solution could at some future date be considered practicable for PUL, we might again be able to display a single complete file of bibliographic information.

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*We believe that a three-month user-study has recently been completed, however, and have written to Toronto expressing our interest in the results.

## V. USER STUDIES

If we anticipate closing our card catalogue and beginning a new one in an alternative form, we hope that we can take advantage of new technology to eliminate some of the problems inherent in the use of the present card catalogue and to enrich and make more accessible the information in the new catalogue. To this end, a survey of user studies was carried out.

Catalogue-use studies have been conducted since about 1931, in various types and sizes of libraries and for periods of from three weeks to over a year. This summary is confined to studies performed in academic libraries in the last ten years. Krikelas* says that catalogue use studies have attempted to use information secured from the user as a basis for developing suggestions for improving the catalogue. There have been two problems with this approach:

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* Krikelas, James. "Catalog Use Studies and their implications" in Melvin J. Voight. Advances in Librarianship. v.3, 1972 pp.195-220.

(1) Defining the "typical user" and,

(2) defining "success".

The studies have attempted to find out who uses the catalogue, for what purpose, with what approach, with what success and what problems were encountered.

The largest group of users identified is students, with graduate students in the majority, and faculty and other comprising a very small percentage. The chief purpose is to complete classroom assignments, as well as research or recreational needs. The most frequent approach is by author and/or title, then by subject, although as Lipetz* points out, sometimes an author search is an attempt to find a subject approach to material. The most-used items on the card are author, title, subject, date of publication, and call number. The various studies do not agree on the relative importance of these items. Lipetz found that the success rate for author and subject approaches appears to be about the same. The Richard Palmer** study at the University of Michigan found, as did Lipetz at Yale, that 84% of catalogue users were successful and 16% unsuccessful.

The studies are in agreement that users of the catalogue all need more help in using it and that this help should be provided by librarians. This is the most important way to increase user success.

Some studies recommend a divided catalogue, i.e., an author-title catalogue, and a subject catalogue as being easier to use than a dictionary catalogue. Some think a book catalogue is easier to use than a card catalogue, but there is no real consensus on these points.

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* Lipetz, Ben Ami. User Requirements in Identifying Desired Works in a Large Library. New Haven, Yale University Library, 1970.

** Palmer Richard P. "Computerizing the card catalogue in the University Library; a Survey of User Requirements" in Research Studies in Library Science no. 6, 1972.

The Ben-Ami Lipetz study at Yale (1970) interviewed 2,134 users at the beginning of their catalogue use and later to find out how successful they were. This study made every attempt to be statistically reliable, a standard that many earlier studies did not meet. This study lasted from March, 1968 through April, 1969. The principle ways of looking up known items were author 62%, title 28.5%, subject 4.5% and editor 4%.

The University of California at Los Angeles Working Group on Public Catalogues in their Subgroup C Report in 1974 did not recommend a general catalogue use study but proposed that limited surveys be designed and carried out by experts. Their group thought that there was still much to be learned.

Some studies cautioned against using quantitative measurements at the expense of qualitative measurements. They warned that the items on present catalogue cards are essential to the work of the library staff and some scholars. Lipetz says: "Data elements other than author, title, and subject are of definite value in resolving many searches in which the entry clues are ambiguous or inaccurate. Such data elements should probably not be abandoned entirely, even in a computerized catalogue where data storage is very expensive. Further study is warranted on the costs and benefits of acquiring, storing and retrieving such data elements, in order to determine their relative values of expendability" (Lipetz, p. 71).

The automated catalogues of the future will permit more flexible access with users being able to approach such catalogues in a variety of ways.

James Krikelas gives an analysis of the complexity of interpreting the results of these studies. He says, "From the little evidence available from catalogue use studies, it can be predicted that different users with differing needs will require different amounts of information and that the libraries which elect to provide the most bibliographic information will have a more useful base for manipulation of the information when the appropriate programs and machinery are available" (Krikelas, p. 209).

## VI. RECOMMENDATIONS

Having reviewed our current situation, and our situation as it will evolve by 1980 and beyond, the Committee believes that we should pursue two goals, a long-range goal and a short-range goal.

### Long-range goal

We recommend an on-line catalogue with a COM back-up system. An on-line catalogue offers the following advantages:

(1) Sophisticated searching techniques through the use of Boolean logic.

(2) Access to the complete union catalogue in various locations.

(3) Instantaneous changes and up-dates in records.

(4) Capability of providing access to regional and national data bases.

Either a book catalogue or a COM catalogue could offer the advantage of a union catalogue in branch libraries, but the book catalogue would most certainly result in prohibitive costs if maintained beyond a certain time frame, and neither form of catalogue offers the possibility of Boolean type searching that potentially exists with an on-line system. The advantage to the user in such a system is so significant that we cannot afford not to pursue it.

Our movement toward this long-range goal should be guided by external developments in networking, rather than our local capacity to develop an on-line system. We should take advantage of an operational network that offers us the configuration of bibliographic access desirable for our readers here at Princeton as soon as such a network is economically viable.

### Short-range goal

Our short-range goal will be influenced by our ability to implement an on-line catalogue system at Princeton prior to or coincidentally with LC's adoption of AACR 2 in January, 1980. If we will not reach this stage by that time, the Committee recommends that we cope with desuperimposition and other changes in LC cataloguing data by closing the

Public Catalogue and creating an interim catalogue based on a machine-readable file.

This recommendation grows out of our belief that the changes that would be necessary in the existing card catalogue, using any of the three approaches outlined in Section III, would result in serious impairment to the intellectual structure of the Public Catalogue. Physical disruption over a period of several years would be the result of the third approach; transfer of files and substantial commitments of staff time would be necessary to undertake any of the three approaches.

Of the various alternatives available to us for an interim catalogue, we believe that the two best solutions would be either a new card catalogue or a COM catalogue. Unfortunately, we lack the information to determine which is the better approach or whether it would be feasible to consider some other configuration, such as COM for Firestone and production of cards for branch libraries.* The decision would need to rest on information gleaned from user surveys and from rigorous study of the costs involved in these solutions. Because of the potential need to adjust to future changes in cataloguing rules and international cataloguing practices, we feel strongly that a card catalogue should be chosen only if there is reason to believe that an on-line system will be operational here by 1985.

It should be noted that there will be additional cataloguing costs beginning in 1980, but part of the costs would be offset by the diminishing requirements for filing and correcting cards if the system were not tied to a card format.**

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* This latter approach would be facilitated by the development of machine-readable authority data that could be produced in multiple copies at fairly frequent intervals so that branches could readily incorporate the revised headings within their existing catalogues.

** It is assumed that some activity in the retrospective card catalogue would need to continue for some time.

The Committee has rejected the idea of an interim catalogue in book form. A book catalogue produced by line-printer, the cheapest of the two possible production methods, yields a catalogue of extremely poor readability. Since we may need to use this catalogue for at least five years, the bulk of the catalogue also becomes a major drawback in considering the line-printer format. A book catalogue produced by photocomposition would not be cost-effective in the usual sense because of the relatively few copies we would need, but it would be less expensive over all than the other alternative, a COM catalogue. While the COM catalogue itself could be produced in multiple copies at a fraction of the cost of any other form, the investment in readers (see p.31) is substantial. There are two other factors that have led us to reject the book catalogue in favor of a COM catalogue. First, technological advancement and the market may bring down the cost of readers by the time we would need them. The second factor is that we have recommended a need for a COM back-up for our catalogue of the future, and we could capitalize on the earlier installation of COM equipment in order to familiarize the staff and users with the use of microforms as bibliographical tools.

It is obviously advantageous to adopt an interim catalogue that can be disposed of in its entirety when an on-line catalogue is established. This is based on the assumption that any machine-readable file we develop concurrently with the interim catalogue can later be utilized within the framework of a network and will form a desirable base of several years of catalogue data. Our machine-readable file should be geared to compatibility with developing networks in so far as possible. A chart of estimated costs for the interim catalogue alternatives excluding the line-printer appears in Appendix II.

Specific recommendations:

To pursue these goals, the Committee recommends that the following steps to be taken in the near future:

1. Undertake PUL user studies

Information about our users will be invaluable in determining the final configuration of our on-line system. The Library of Congress, in designing the register/index format of the future National Union Catalogue, can say with assurance that 80% of all NUC searches will be answered on the basis of the limited bibliographic information that will be available in the indexes. We need such assurance in the context of an academic library. We need to know more about the kinds of searches our users attempt and their success and failure rates, in order to build desirable features into our system. The literature review of user studies summarized in Section V does not give us guidance on the physical format of the catalogue nor the specific use pattern. Knowledge of the optimum number of access points (i.e., COM readers or on-line terminals) required by our readers in Firestone and the branches is basic to the system design as well, and should be investigated through a user survey.

2. Develop a plan for disposition of the retrospective card catalogue.

We need to investigate the cost of rehabilitating the card catalogue both physically and intellectually, and to study the feasibility of publishing the retrospective catalogue in book form or converting it in some other manner. Advances in the technology of optical scanning mentioned earlier may have implications for the conversion of our retrospective catalogue into machine-readable form. The Committee believes that the library might well be successful in seeking outside funds to cover rehabilitation and publication or conversion costs for the retrospective catalogue.

We should project the date when the rate of activity in the retrospective catalogue would drop off sufficiently to allow data in this frozen catalogue to remain relatively valid.

3. Develop interfaces between the other automated systems at PUL (circulation, serials) and the emerging cataloguing system, as a step towards a totally integrated system for PUL.

4. Develop a machine-readable file.

If it seems likely that a network such as RLG or BALLOTS or a system such as that at the University of Chicago will offer us a shared cataloguing program substantially better than OCLC's between now and 1980, any special effort to create a clear and comprehensive machine-readable file through OCLC should be set aside.

If it becomes apparent by January, 1979 that a new shared cataloguing program is not available to us, then an investigation should be made of the feasibility of up-dating our OCLC archive tape. We need to develop a method for processing all changes and corrections to OCLC-produced catalogue records in such a way that the tape will be a clean and usable documentation of our current catalogue record. (At present, changes are made only on the catalogue cards themselves.) This investigation would need to take two directions: devising the method of implementation, and determining the optimum date of implementation. Local programming for batch processing of up-dates or on-line up-dating through OCLC are the two methods that appear to be worth pursuing. Ideally, our investigation of the method should include detailed systems design and testing. The optimum date would be determined by weighing the cost of implementing such a dual correction system (i.e., correcting the tape as well as the cards) against the advantage of creating a clean machine-readable file at the earliest possible moment and producing a maximum number of usable records on our archive tape for future use in an on-line system.

At the same time, the Catalogue Division will need to create a machine-readable record via OCLC for each newly catalogued title. While serial and non-Roman language titles will depend upon OCLC system capabilities, the third category of titles not now in machine-readable form (LC titles and microform and analytics not in the OCLC data base) will need to be coded and transcribed in machine-readable form. The Catalogue Division should be encouraged to alter its staffing and work flow patterns and will require additional support to meet this objective at that time.

5. Develop detailed cost information for designing and installing the various alternative forms of catalogues should an interim system be necessary.

The cost information the Committee has thus far accumulated is very general and somewhat outdated, consisting of costs for components that are independent of the local situation.* We need accurate information about staffing and other costs for maintaining a new card catalogue to compare with the costs of COM catalogue.

6. Establish the position of Planning Officer.

In view of the critical importance and the complexity of both the long-range and short-range goals we strongly recommend that a planning position be established for a four or five year period and that the individual appointed to this position be charged with over-all responsibility for undertaking the rigorous investigations and analyses required (and for establishing liaison and active working relationships with appropriate University staff.)

For several reasons, the Committee feels it would be desirable to fill such a position internally. First, there are advantages in appointing someone already familiar with the requirements and technical details of the PU Library to avoid the start-up time an external appointee might need. Second, this position would provide an excellent growth opportunity for an interested staff member. Finally, given budgetary restrictions, we recognize that it may be impossible to add a new position to the staff.

While initially the position could be a half-time one, we are also mindful that most positions now existing on the staff cannot be confined to half-time - they have a tendency to grow out of the established bounds. In this particular instance, should an unfortunate conflict in responsibilities develop, the success of the various interrelated projects would certainly be threatened. When the activity accelerates and additional funds have been secured the planning position must be full-time.

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* See Appendix II

The Committee also believes that an advisory group respresenting a cross section of the library should be established to work with the planning officer. This group should play a part in keeping the staff informed of developments.

In conclusion, the Committee cannot emphasize too strongly the importance of concentrated careful study and planning to achieve the goals outlined above.

## APPENDIX I: A SURVEY OF OTHER INSTITUTIONS ON THE QUESTION OF THE FUTURE OF THE CATALOGUE

In an effort to learn where comparable institutions stand on the question of the card catalogue's future, a telephone survey was conducted. Cornell, Indiana, Michigan, Minnesota, New York University, Northwestern, Ohio State, the University of Pennsylvania, UCLA, UC-Berkeley and Wisconsin were approached. In most cases it was the Director of Technical Services who was contacted, with the exceptions of a head of Cataloguing and the chairpersons of catalogue study committees. Their responses in abbreviated form are listed below; we have complied with a request for institutional anonymity.

### Institution A

The assumption is that they will close but no decision-making steps have been taken. The issue will probably be addressed next year.

### Institution B

A Committee with a charge extending over several years is in operation. Studies of the use patterns at the various catalogues are being conducted. A Committee vote on whether to recommend closing is about to come up. No firm decisions have been made as to the form of catalogue alternatives.

### Institution C

Have had several committees in the past, all of which have lapsed after running through the gamut of the available literature. Committees were useful as a continuing education device. Another committee will probably be appointed next summer, and the technical services director intends to start work on major position paper(s) soon. Estimates for filming the main catalogue have been solicited and were rejected as too high. Pilot project involving the filming of a branch catalogue and manipulating OCLC tapes is being discussed. Technical services director cautions against blindly deciding to close, and is not tempted to close before LC does.

Institution D

Committee to study question will be set up next week.

Institution E

"At this point, any discussion that has been held has been informal and accidental." Formal discussion is expected after the adoption of AACR 2.

Institution F

Although no formal decision-making has taken place, an "understanding" exists that the catalogue will probably be closed when LC closes its own. An overlap between catalogue cards and the new system seems likely. Having an on-line catalogue, perhaps with COM as the back-up, was identified as an eventual objective; these will doubtless be products of an overall in-house automated system, major segments of which have already been developed and are in use. An on-line display of brief bibliographic data is now available to members of the technical services staff, who are being encouraged to comment on its performance and make suggestions for its improvement.

Institution G

This institution is developing its own system to provide an on-line catalogue; parts of the search capability are expected to be operational in early 1978, with full on-line search capability by October, 1978. The terminals have been ordered, and additional task forces are being established. The questions of whether to allow for an overlap of old and new systems and how much retrospectively-catalogued material to include in the new system have not yet been resolved.

## Institution H

The library director and the director of technical services have informally discussed closing. The technical services director is now preparing a draft on the subject and offered a personal opinion that the institution will close the catalogue when LC does.

## Institution I

Serious consideration is being given to the adoption of a COM catalogue in the very near future with provision for a large-scale conversion of existing records to machine-readable form. Ways of producing the COM are now being investigated, and dealing with vendors is receiving careful thought.

## Institution J

A study committee issued a final report in January, 1976, recommending an on-line catalogue as a long-term goal. Since that time extensive analysis of both OCLC and BALLOTS in terms of system efficiency and staffing requirements has occurred. The data collected (which will be made public in the near future) will provide a basis for a state-wide network decision. A staff advisory group chaired by the Assistant University Librarian for Technical Services keeps apprised of current developments. While there is no timetable for the closing of the catalogue, there is the feeling that library is in phase with Library of Congress developments and that card production will cease gradually.

## Institution K

Three study groups have issued reports; the latest one (February, 1977) lays out a timetable for the development of an on-line catalogue by 1980, the conversion of the retrospective file, and tentative costs. The report has been adopted "at least in principle as the direction for planning."

## APPENDIX II

## COST ESTIMATES BASED ON 60,000 NEW TITLES/YEAR

| | Photocomposed book catalogue. 50 Copies-annual plus monthly cumulation | COM fiche catalogue. 50 Copies - annual plus monthly cumulation | Cards |
|---|---|---|---|
| 1st year | $115,000.00 (1) | $4,300.00 (2) | $15,120.00 @ $ .045 per card equivalent to current OCLC costs. (3) |
| each additional copy | 150.00 (1) | 63.00 (2) | |
| 5th year | $181,000.00 (1) | $6,955.00 (2) | $15,120.00 |
| each additional copy | 250.00 (1) | 110.00 (2) | |
| additional expenditures | Computer costs<br>Re-education of library clientele | Computer costs<br>Re-education of library clientele<br>Purchase of microform reading equipment ($80.00 for a simple fiche reader to $5,000.00 for a ROM 3). Will require enough readers to avoid queuing problems. | Staff costs roughly equivalent to 3,360 man-hours of filing time (positions currently staffed at SG3 plus professional time for supervision and training). (4) |

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(1) Costs include photocomposition, printing and binding, based on Bell Labs and NYPL data.

(2) Based on data from the Berkeley and UCLA reports.

(3) Cost does not include charges for using OCLC system, e.g., terminal maintenance, telephone line costs, record use costs, etc.

(4) Does not include card stamping and finishing work.

Cornell University
December 1977

# TASK FORCE ON THE FUTURE OF THE CORNELL UNIVERSITY LIBRARIES CARD CATALOGS

## Report #1: Recommendations and Future Agenda

Christian Boissonnas
Paul Cheng
Meeri Kaaret
Michael Keller
Chung Kim
Ryburn Ross
Caroline Spicer
William Treat
Elaine Walker
Edward Weissman
Linda West
Jeanne White
Marcia Jebb, Chair

December 1977

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6. Cost of card catalogs through 1984
7. Report on the Catalog Use Survey
8. A plan for making the transition from the card catalog to the on-line computerized catalog

NOT INCLUDED---
available from SPEC

## RECOMMENDATIONS AND FUTURE AGENDA

For the past two years the Task Force has studied the condition of the present CUL card catalogs and the anticipated effects of the Library of Congress's adopting the new cataloging code by 1980. The following recommendations and future agenda are based on the attached summary of our discussions and studies.

### RECOMMENDATIONS

The Task Force's recommendations are:

1. CUL should close its current card catalogs at the time the new cataloging code (AACR II) is adopted.

2. CUL should substitute for the card format a new on-line data base using records in the MARC format, with an in-house backup consisting of a mini-computer for the most recently processed material and computer-output microform (COM) for other materials. The new automated record must (a) be a true Union Catalog, containing holdings for all libraries in the system and (b) be a complete record for users, by offering more points of access to each entry than the present 3" x 5" catalog card can offer.

3. This new version of the catalog should be one component of an in-house automated system that manages the libraries' other processing tasks: acquisitions, serials, circulation/reserve, etc. CUL should begin this year to activate such a system, working in stages and keeping informed of similar developments elsewhere that might be applicable to our needs.

### AGENDA

To implement these goals, we propose to focus on the following areas of concern. Each sub-committee will prepare reports that, after approval by the Task Force, will be issued as supplements to this report.

1. Closing the card catalogs.

This sub-committee will investigate possible methods of closing the card catalogs and draft a plan for closing them. Among problems to be examined are: closing by imprint vs. closing by cataloging date; the fate of serial records and records for multi-volume monographs; the disposition of the "Old Catalog"; and available options for an interim catalog should CUL not have an on-line catalog when the new cataloging code is adopted.

Once this report is accepted, the Task Force will assign selected members to study the various options available for converting the closed union catalog to another format (book catalog, microform, reconversion to machine-readable form).

2. Scope of the future bibliographic record.

This sub-committee will study alternatives to the present concept of a dictionary catalog. Subject access to an on-line data base, for example, may be provided in different ways for different disciplines. Non-Roman titles could be treated separately; some classes of material we now catalog could perhaps be treated archivally. This group will conduct user studies and maintain liaison with the Assistant Director for Development of the Collections who for the next two years will be evaluating the nature of our collections and recommending changes in storing and servicing them.

3. Automating the CUL bibliographic record.

This sub-committee already is examining a detailed proposal for starting in-house automation with a new acquisitions system and phasing in the automation of other functions until we are prepared for an on-line catalog. Assuming that this proposal or a similar plan is referred to and accepted by the Task Force in the near future, this sub-committee will continue to keep the Task Force informed of not only in-house progress in automating CUL records, but of technological developments elsewhere.

4. Staffing patterns and staff development.

Finally, the new data base will mean far-reaching changes in staffing patterns through-out the CUL system. The Task Force will cooperate with the Resources and Services Committee of the Academic Assembly in conducting a study of current staffing patterns and future staff requirements. We could co-sponsor a continuing series of workshops, lectures, etc. to keep the entire CUL staff informed of what is happening to the CUL catalogs and to catalogs elsewhere.

## SUMMARY OF THE TASK FORCE'S DISCUSSIONS AND STUDIES

## I. INTRODUCTION

### The Task Force

In September, 1975, the Director appointed a Task Force on the Future of the Cornell University Libraries Card Catalogs. The Director's charge to the Task Force was to develop short and long range planning guidelines for decisions affecting the future catalogs, "based on such objectives as adequate public service, cost benefits, space allocations and bibliographic control of the Libraries' collection."

The group has met about every other month since October 1975. After drafting a list of short-term and long-term goals, we assembled a profile of the card catalogs and special files now maintained in campus libraries, and produced estimates on staffing and equipment costs needed through 1984. The uses per hour of catalogs were surveyed. Members gave reports of meetings attended, examined various automated systems and discussed pertinent printed reports. (See appendices and bibliography.)

### Developments at Library of Congress and Elsewhere

Before outlining the situation in the Cornell University Libraries, it seems advisable to summarize what is happening among other research libraries and at the Library of Congress.

### Library of Congress and AACR (II)

The Library of Congress is planning to close its card catalog in 1980 and depend on an on-line, automated system which would include an integrated authority file.[1] To date it is not known exactly how subject access is to be provided, although the Library of Congress has been investigating the PRECIS System.[2] Whether after 1980 subject access at LC is through a printed catalog and/or on-line, it is likely that Library of Congress will make substantial and more frequent changes in subject headings.

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[1] See "LC to freeze card catalog." LC Information Bulletin, 4 Nov. 1977, pp. 743-745 746. This article states that as of January 1, 1980, the Library of Congress will rel primarily on automated data to provide access to the collections and will adopt the second edition of the Anglo-American Cataloging Rules (AACR II).

[2] See "New bibliographic tools proposed by LC," LJ, 1 Sept. 1977, pp. 1701-2: LC plans a master listing by entry number with registers, or indexes to allow subject, title, main entry, and other points of access.

Concurrent with the closing of its catalog, the Library of Congress has said it will adopt and follow the new cataloging code, Anglo-American Cataloging Rules II (AACR II) for descriptive cataloging. The AACR is scheduled for publication in 1978 and the Library of Congress expects to start using it in the fall of 1979. Though we have not yet seen the text of the new code (now available in draft form) it reportedly includes extensive changes in forms of entry or use of form subdivision.

More significantly the Library of Congress plans as of 1980 to change all name headings for persons and corporate bodies in its catalog established under the ALA rules to the form called for by the new AACR. When AACR I was adopted in 1967, the Library of Congress did not change established headings (cataloged according to ALA rules) but continued to use them; these "old" non-AACR headings were established by superimposing the ALA rules over the AACR. New name headings established since AACR I, however, have been cataloged according to AACR rules. Superimposition, then, is the policy of continuing to use old headings where they exist, applying the new rules only to brand-new headings. Desuperimposition means changing names established under ALA rules to the forms required by AACR rules where there is a discrepancy. Clearly, when LC begins using AACR II for all its cataloging, we will have to change many records each year to make our local card files compatible with LC practice. The result would be an increasingly intricate network of "See also" references in the already complex CUL Union Catalog.

### Other Research Libraries

The New York Public Library closed its card catalog in 1971 and relies on a computerized book catalog. The University of Toronto closed its card catalog and uses computer output microform (COM) to record subsequent holdings. Other libraries -- notably UCLA, Berkeley, and Princeton -- have established committees on the card catalog; Princeton's report notes that seven of eleven ARL institutions surveyed have decided to close, or are leaning towards closing, their catalog in 1980.[3]

If as yet few large university libraries have any specific plans for their post-1980 catalogs it is primarily because technology cannot yet offer an affordable substitute equal to the present card catalog. BALLOTS at Stanford is one example of an automated system; the Research Library Group (NYPL, Columbia, Harvard, and Yale) has received a grant to investigate possibilities of an automated system appropriate to large research libraries, and have analyzed the University of Chicago's Library Data Management system and BALLOTS. To date, (December 1977) RLG has not decided what hardware/software to choose in setting up their module. Six systems (including OCLC) were asked to submit data to RLG by October 15, 1977.

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[3] Princeton University. Library Committee to Study the Future of the PUL Catalog, Report (May, 1977) Appendix I.

## II. THE COST OF CARD CATALOGS

The cost of utilizing card catalogs for bibliographic access can be looked at from two perspectives. There is the cost of maintaining the catalogs involving card production, filing, materials, maintenance and space. There is also the cost to the user of using them in lieu of some other form of access.

A significant amount of staff, equipment and space is required to maintain card catalogs. In an analysis of three large academic libraries, it was determined that 22% of the total cost of cataloging goes to the card catalog and its maintenance.[4] The factors involved include: typing (and/or inputting), revising and producing catalog cards; sorting and filing the cards into catalog cases; purchasing card stock and catalog cases; replacing worn and missing cards; correcting entries that are changed or incorrect; and shifting cards and relabeling drawers during expansion.

The size of the card file is a factor in the cost of maintenance. It is more difficult to file an entry into a large catalog, where there are many similar entries, than into a smaller, less dense catalog. (Filing a card entered under "Jones, Edward J." will probably take longer in a file when there are two hundred other entries under "Jones" than if there are only ten others.) Furthermore, as changes in entries occur, a greater number of cards need to be pulled and revised to update the catalog. This makes a large catalog less responsive to change and more expensive to maintain.

The increasing inflexibility of the card catalog as it grows leads to a corresponding deterioration in the quality of bibliographic access. The adoption of simplified filing rules, improved cataloging rules and the revision of archaic and sometime offensive subject headings have all been impeded.

The Library of Congress has indicated that when it closes its catalog in 1980 it will institute a significant number of changes in entries and subject headings, changes it can not make now because of the size of its own catalog. It is doubtful that any large library that is dependent on Library of Congress cataloging, as Cornell is, will be able to maintain its card catalogs effectively at a reasonable cost after that time. Even now, a growing network of cross references and split files make catalog use more difficult.

The physical maintenance of the card catalog becomes an increasingly important factor as the catalog gets older and larger. Card stock tends to get brittle with age and deteriorate with heavy use. Cards must be replaced. Card trays break and require repair and replacement.

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[4] Presented by John Knapp at the seminar "Closing the catalog: automated alternatives to the card catalog," Nov. 4, 1977, New York. (Summary of proceedings published in LJ Hotline, 14 Nov. 1977)

Finally, with the growth of library collections, catalog expansion becomes necessary. New cabinets must be bought and space must be found to accommodate these cases, often at the expense of other functions. The staff time needed to shift cards and relabel drawers is substantial in itself.

These factors relate to the cost of developing and maintaining card catalogs. Of even greater importance is the increasingly difficult task of using the catalogs, both for library staff and patrons. As the catalog grows it gets more complex. The total number of entries increases and it becomes more difficult to distinguish between similar entries (e.g. Smith, R. J., 1910- , Smith, Richard J., 1924- , Smith, Robert Joseph, 1936- etc.). The file of cards under a specific entry also increases. The catalog is further complicated by an increasing number of cross references and split files. This complexity is likely to lead to an increase in the number of filing errors and other discrepancies. Searching for a known item therefore becomes more time-consuming and less efficient. Browsing in the catalog is likely to be less rewarding.

Another problem associated with the use of card catalogs is the relative lack of accessibility. This problem is most noticeable in a decentralized library system such as Cornell's. Patrons and staff must converge on one location to attempt to access the holdings of all the collections at one time. The price the user pays in time and in convenience is increasingly difficult to justify. Computer-based alternatives allow for access from multiple locations.

Thus, there are a number of costs associated with the maintenance and use of a card catalog. These costs tend to increase with the size and age of the catalog. It is difficult to say at this time whether closing the card catalogs at Cornell will provide significant cost savings. However, it is clear that there will be significant deterioration in the level of bibliographic access and library service if the card catalog is not closed. This is a cost that is difficult to measure in financial terms, but is a heavy price to pay.

## III. THE CURRENT STATUS OF THE CORNELL UNIVERSITY LIBRARIES CARD FILES

### Size

At the end of 1975 the thirty-six card catalogs and twenty-six shelf lists at the Cornell University Libraries contained about 15.2 million cards. In addition, over 100 other special card files existed in libraries around the campus.* The two largest card files, the union catalog and the shelf lists located in the Olin Library, contained 7.1 million and 2.1 million cards respectively. The divided catalog in Mann Library contained approximately 1.05 million cards. With annual card production averaging 957,000 cards, the catalogs and shelf lists are approaching a size of 17 million cards. The union catalog now contains approximately 8 million cards. A separate union serials catalog in the Olin Library contains over 300,000 cards.

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*See the appended list "Catalogs and special card files in the Cornell University Libraries." (Appendix 2)

These cards provide bibliographic access to collections of 2.3 million titles and almost 4 million volumes, collections that are growing by 80,000 titles a year.

## The Department Libraries

Besides housing the union catalogs, Olin Library also houses six special collections that contain their own card catalogs. Of the fourteen other libraries on campus only three, the Law Library, the Hotel School Library and the Mann Library, now catalog materials for their own collections. All others (with the exception of the Veterinary School Library, which receives its catalog cards from the Mann Library) receive their cards from the Technical Services Department at Olin Library. None of the catalogs in these libraries approaches the union catalog in size or complexity. Nevertheless, considerable effort is needed to maintain them as card sets are produced in duplicate and filed in both the union catalog and in the catalog in the appropriate department library. These catalogs vary considerably in organization (several are divided catalogs) and in arrangement of entries (various filing systems are used). A variety of special files are also maintained. The time required to maintain these card files varies considerably from one unit to another. An analysis of data in 1975 indicated that 17.5 man years of labor was used campus wide in supporting the card catalogs. At that time this amounted to $135,937.20 or $1.73 for each new title cataloged. It is reasonable to assume these costs have risen since then. Furthermore, nearly all these libraries either need more space now to expand their catalogs or will need space to expand in the near future. Finally, the users of these subject collections would clearly benefit from on-site access to the union catalog of Cornell University Libraries holdings, particularly when searching for materials in interdisciplinary fields.

## Bibliographic characteristics

In 1947 the University Libraries decided to reclassify its collections from a modified British Museum fixed-shelf location system (Harris) to the Library of Congress classification. As a result of this opportunity to redo all retrospective records and to create a new file, the union card catalog offers users a more consistent approach to the collections than do similar catalogs in other institutions of comparable size. Currently all titles acquired by campus libraries except for periodicals in the Industrial and Labor Relations Library are represented by at least a main entry card in either the union catalog and/or the serials catalog at Olin Library.

There are currently 49,000 pre-1947 imprints that were never reclassified. These currently represent two per cent of the collection. Access to 39,000 of these titles is through a separate main entry catalog adjacent to the union catalog.

Finally, the card files are supplemented by an "on order and recently acquired" list that gives the status of books separately ordered, in process, or recently cataloged within the endowed units in the library system. This COM list is recumulated weekly in microfiche and distributed to each library.

## IV. AUTOMATION AT CUL

### History

In the late 1960's Cornell University Libraries was in the vanguard of efforts to utilize automation to improve library management and services. An automated Acquisitions and In-Process Control System was developed and implemented in 1967-1968. There were ambitious plans for joint projects with the Five Associated University Libraries (FAUL); however, the fiscal constraints placed on the Libraries in the 1970's brought this work to a standstill.

In the last four years there has been renewed interest in automation and several efforts have been made:

1) In October of 1973 CUL joined the Ohio College Library Center (OCLC), installed four OCLC 100 terminals, and began cataloging English-language monographs on the system. Since that time six more terminals have been installed in the Libraries, the monograph cataloging coverage has been extended to all Romance and Germanic languages, and through the Conversion of Serials (CONSER) project Cornell is cataloging its currently received serial titles.

2) In 1974 the Industrial and Labor Relations Library began using the Integrated Set of Information Systems (ISIS) to develop a thesaurus of industrial and labor relations terms. In the same year the Department of Manuscripts and University Archives began using the Selected Permutation Indexing (SPINDEX II) system to obtain better control of the President Day papers. Both systems are designed to provide information management capabilities that are superior to manual methods.

3) Through computer terminals located in Olin Library, Mann Library, and the Engineering Library Cornell now has access to on-line data bases run by the Systems Development Corporation (SDC), the Lockheed Corporation, the Northeast Water Resources Information Terminal (NEWRIT), and Bibliographic Retrieval Services, Inc. (BRS). The data bases made available cover extensive areas of the physical and social sciences.

While all of the automated developments of the last four years have benefitted Cornell, they will not all figure prominently in the automation of the catalogs. The Libraries now have approximately 200,000 MARC-compatible, machine-readable monograph and serials records. These will be the basis for the CUL on-line catalog.

Holdings

(1) There are approximately 650,000 records on the history tapes for our Acquisitions System. We now add between 50,000 and 55,000 records each year.

(2) There are approximately 170,000 monograph records on our OCLC tapes. We now add about 45,000 monograph records each year.

(3) There are approximately 21,000 CONSER serials records. We add about 12,000 serials records each year.

## V. AFTER 1980--WHAT?

As noted above by 1980 the Library of Congress plans to catalog all its current Roman alphabet acquisitions through a computerized on-line system, adopting the provisions of the new AACR (II) code. On-line cataloging will enable the Library of Congress to make changes in entries and subject-headings rapidly and easily. Theoretically all libraries that wish to continue using LC copy have two basic choices: (1) to maintain their present card catalog or (2) to close their present card catalog and start a second post-1980 catalog.[5] This "second" catalog could be a card catalog, an online catalog, a microform or book catalog, or some combination of these formats.

1. Maintaining one open-ended catalog could be done in three ways:

   (a) changing all post-1980 LC copy to conform to our local existing entries;

   (b) changing existing local entries to match post-1980 LC copy as conflicting entries crop up;

   (c) using post-1980 LC entries as received, filing these into our existing catalog and making "see" and "see-also" references between old and new forms.

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[5] For a detailed discussion of the effects of LC's new catalog in user libraries see Sally Hart McCallum's "Some implications of desuperimposition," Library quarterly, April 1977, pp. 111-127.

All three alternatives have the advantage of offering the user only one alphabet to search, although (c) would really create two catalogs disguised as one file. Option (a) rather weakens the advantages of using LC copy and essentially means we would "go it alone" in establishing bibliographical control of the collections. Option (b) means coping with desuperimposition. Both (a) and (b) would require additional staff to make extensive changes on existing card copy. Perhaps option (c) would be possible with existing staff, but the size of the dictionary catalog would make searching in two files almost impossible as LC changed entries according to AACR (II). Also, it would be increasingly difficult to guide users from one file to another as LC changed subject headings. For example, the subject heading "Negroes" has recently been subdivided to "Afro Americans" and "Blacks."

2. Closing the card catalog in 1980, and starting a new catalog, would enable us to process incoming materials expeditiously, cut staff time needed to maintain the files, and--initially at least--allow users to locate new items with incredible ease. The chief drawback to closing the card catalog is that we would create two files of major importance, indefinitely separated, which users would have to approach in different ways to gain total access to our collections. For smaller libraries this might not be so important after 5-10 years, but for a research library of our size and diversity this is inevitably a painful development.

If we do decide to close the catalog, however, several other major decisions must be made before 1980. These decisions are inter-related and complex enough to deserve separate detailed reports at a later date. We will only list them here:

Criteria for closing

------ Do we close or freeze the present union catalog? "Closing" implies that no cards for titles published after the date of closing will be added to the catalog, but that existing entries can be corrected or updated. "Freezing" carries closing one step further: No changes would be made in the clsoed catalog, which could then be converted, if we wished, to another format such as microform or a book catalog.

------ Should a new catalog be based on a cataloging date or on an imprint date? Closing by a cataloging date is easier for staff and preserves the option of eventually freezing the closed catalog. For users, this would mean that to find holdings in many disciplines two files would have to be searched because new editions of older works would be added to the new catalog. Closing based on imprint date is much easier for users to understand, but essentially keeps the older catalog alive and in need of constant maintenance, and requires library staff to work with two sets of cataloging rules. Assuming that we continue adding retrospective purchases to the collections, we would not be able to freeze the present catalog without creating some supplementary file to record these purchases.

------ What becomes of our records for serials and monographic series still "alive" in 1980? Would one serials file be the answer?

## Disposition of the closed catalog

If we decide to close and freeze the present union catalog, it would then be possible to convert the cards in it to another format, such as microform or a printed book catalog. Reconverting a file of this size to machine-readable data is technically possible but economically far too expensive to consider at this time. The chief advantage of converting the present catalog is that college and departmental libraries would have on-site access to the full bibliographic record. A secondary benefit would be to free up space in the now over-crowded catalog area in Olin Library.

## Format of the new catalog

A new catalog could appear in one or more of the following formats: a card catalog, a microform or printed book catalog, or an on-line catalog.

Of these options, another card catalog would be the easiest to initiate and the most difficult to live with on a long-term basis. Either a book catalog or a microform catalog could be duplicated and distributed to other libraries on campus, but both formats require frequent updating and become quite expensive as the Master file enlarges over the years. An on-line catalog could offer users multiple access points to all items in the data base, removing the problems of filing cards or producing supplements needed to update book or microform catalogs. Once set up, an on-line system could accommodate not only holdings records, but other processing records for the library system, e.g. circulation, reserve, or acquisitions files. If an on-line system offers more than other formats, however, it also costs appreciably more in terms of funds and effort.

## Summary

From the above observations we may conclude that trying to maintain the present card catalog by filing into it after 1980 has several disadvantages. We would need more staff in all libraries to make LC's copy usable, regardless of which alternative we chose. Users would have difficulty in interpreting multiple cross-references and split files. Space for expanding catalogs is now at a premium at Olin Library and in most other campus libraries and can be gained only by displacing reference books or space now allotted to readers.

The primary advantage in maintaining one union catalog is that users need struggle with only one alphabet and can look in one place to find citations. It is true that when a catalog becomes as large as Olin's is now, it is difficult to use simply because of its size; nevertheless, consulting two major bibliographic files, each organized differently, would demand more time and effort from librarians and users. Indeed, it seems likely that staff would have to be assigned to a new catalog/information service unit.

On the other hand, closing the CUL card catalogs and accepting post-1980 LC copy offers us more than economic advantages. Although given its present limitations OCLC does not now offer an acceptable substitute for the bibliographic access guaranteed by the conventional card catalog, there can be no doubt that on-line access to our collections would be of immense benefit to most users. Unless we can take advantage of LC's MARC records and authority files, we will not be in a good position to automate our catalogs. This is not to say that CUL will be ready to switch to an on-line catalog by 1980, but keeping our records compatible with LC's data base would at least not delay further the possibility of offering users on-line access. For the college and departmental libraries, particularly, having on-site access to the complete (post-1980) union catalog would enable staff to offer much more complete reference/information service to their clientele without losing the possibility of in-depth subject approaches to their collections. Less cogent, but still important, is the argument that closing and freezing the present union catalog would enable us in the future to make it available in some other format, and thus accessible on-site to other campus libraries and to users in the Olin stacks.

## VI. CONCLUSIONS

From the preceding outline of factors affecting the future of the CUL card catalogs, two major points stand out:

1. Closing the union catalog at Olin offers the opportunity to begin a new bibliographic record that users could access from many points on campus. This improved access to newer materials would be accompanied by the need to search the retrospective card file for older materials. Maintaining one card file indefinitely requires appreciably more staff than we now have and could delay, or possibly impede, any future CUL decision to join an on-line automated system.

2. Given the size and scope of our collections, any solution will be costly. Neither the members of the CUL Task Force, nor anyone else, have firm estimates on the cost of a new bibliographic record.[6] Our recommendations for post-1980 processing systems will continue to evolve on an ad hoc basis as technology develops and groups of large libraries, such as RLG, come closer to making decisions on systems. About all we can say definitely now is that

(a) Not closing our card catalogs when LC closes its catalog will mean budgeting more staff positions to process cards and maintain the catalog, and

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[6] For some not too encouraging estimates, see M. D. L. Vervliet's "Alternative physical forms of catalogues in large research libraries," International Cataloging, Jan./Mar. 1977, pp. 6-8.

(b) a computerized catalog will not save money, in terms of spending less for cataloging than we do now. For filing positions now budgeted we probably would have to substitute staff to interpret the two very different catalogs. Obviously a sizable capital expenditure for hardware would be necessary to set up an on-line system.

Whatever decisions we make will be influenced by changes taking place in technology. We should begin planning now to alter our system of bibliographic control, so that we can build into any new system sufficient safeguards to preserve the quality of our service while improving its speed and efficiency. The Task Force should investigate in detail unique local needs and characteristics, including access to special collections, the needs of the college and departmental libraries for subject access to their own collections, current processing and servicing of official publications at CUL and deficiencies in our current card catalog which could be remedied by 1980.

/pa
12/77

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Report #1
Appendix 1

11/6/75

## Task Force on the Future of the Cornell University Libraries Card Catalogs

| GOALS<br>To determine: | SHORT-TERM (2-3 yrs) | LONG-TERM (up to year 2000?) |
|---|---|---|
| I. Current profiles of: | Card Catalogs and Special files | |
| II. Costs of: | Maintaining present card catalogs:<br>labor<br>equipment<br>space | Maintaining present card catalogs |
| | Interim catalog (bridge between LC's closing and NIC's going on-line)<br>Book catalog(s)<br>Microform<br>Other (including combinations) | Alternatives to card catalog:<br>on-line (assume redundancy)<br>printed catalogs: total<br>partial (e.g. subject only)<br>microform<br>combinations? |
| III. Access patterns: | | |
| A. Physical access | # use rates per hour of card catalogs by: public<br>staff | (a) # terminals (or other access points) needed for on-line (or other type) of catalog (queuing problem)<br>(b) location |
| B. Bibliographic access | (a) Proportion of use for location known item vs. bibliographic use (including reference staff help)<br>(b) Subject approach to collections - how often needed (include users of departmental libraries) | (a) One integrated file vs. a series of sub-systems?<br>(b) a need for subject access in on-line catalog? |
| IV. Staffing patterns required: | Separate catalog-infor section needed? | On-line system:<br>role of reference staff? (extended hours of service needed?)<br>Separate unit needed to intepret records?<br>Shift staff from tech. services to public services? |

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The attached documentation served as the basis for the most recent phase of planning for bibliographic display at the General Library of the University of California at Berkeley. The first four pages are an attempt to articulate assumptions commonly held among the library staff, and decisions already made. The following pages are the charges to individuals, teams, and groups which have been working on various assignments or serving as consultants and advisers in particular areas during the past four months. Instead of the names of individuals working on particular assignments, their positions within the General Library have been given in parentheses.

Joseph A. Rosenthal
Associate University Librarian
for Technical Services

December 1977

# FUTURE OF THE CATALOGS: The General Library
## A Status Report, and a Basis for Planning

The General Library will freeze its present card catalogs at approximately the same time the Library of Congress closes its card catalogs, now scheduled to occur January 1, 1980.

All, or substantially all, of the General Library's cataloging data will be either received or input in machine readable form by 1980.

The General Library will be participating in an on-line cataloging/technical processing system for the forseeable future.

The bibliographic system for the General Library will be developed so as to be consistent and compatible with Universitywide planning and implementation in this area of library operation.

National bibliographical standards will be followed, in order to facilitate the potential for cooperative and networking activities, and to minimize costs. These standards include:

a) Anglo-American Cataloging Rules as interpreted by the Library of Congress, including Library of Congress established forms of entry, for both print and non-print materials;

b) Library of Congress subject headings and classification;

c) MARC formats as developed by the Library of Congress;

d) Filing rules at such time as a national standard for arrangement of computer-based bibliographic records is developed;

e) Romanization system.

Various formats will be used for display of data both centrally and locally. No one form -- card, book, microform, on-line display, or listing -- will be used exclusively. The choice of display format will depend on the use intended and the cost of the product, in the light of rapidly changing technology. Criteria will be developed to enable the General Library to choose among various modes of display and arrangement of bibliographical data.

For the immediate future, a primary display mode for bibliographic data will be microform. The specific microform format(s) will be related to, and developed on the basis of experience with, the present Catalog Supplement and Berkeley Serials Union List. In order to lessen the number of separate displays of bibliographic records, plans should be developed to integrate the display of records for on-order, in-process, and fully-processed library materials.

Records in the machine based bibliographical file will be displayed under at least the same access points found in the present card catalog system: main entry, name and title added entries, and series and subject added entries. (It should be noted that not all of these access points are provided currently for all types of material.) The microform display will be based on the premise that full bibliographical data for any record will be found in only one place: this might be either in the register listing of a register/index display, or under a basic access point, as in the microfiche display now used at the University of Toronto. Choices here will depend on evaluation of public service utility coupled with cost considerations.

For a number of reasons, including anticipated adoption by the Library of Congress and the General Library of the second edition of the Anglo-American Cataloging Rules and an increased pace of revision of subject headings by the

Library of Congress after 1980, many access points in the new bibliographic display will differ from corresponding headings in the existing card catalogs. The General Library's policy will be based on liberal provision of references in the new catalog system; however, alteration of headings and provision of additional references in the existing card catalogs will be on an exceptional basis only.

Planning for the modes of bibliographic display will be on the basis of anticipating a modest extension of on-line access to General Library bibliographic data during the period from now through 1985. By 1980, on-line access should be available at the presently covered units in the Acquisition and Catalog Departments and in Moffitt Library, and in the General Reference Service, the Loan Hall, and in at least one branch library location.

Materials received and processed after the beginning of 1980 will be integrated into the new bibliographic system, regardless of date of imprint. This principle is in accord with the decision of the Library of Congress on the same point, and is intended to lessen the difficulties and costs of processing library materials in the context of two major systems for bibliographic display.

The General Library will expand and improve its program of orientation and assistance to users of bibliographic data which represent the Berkeley collections.

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The next phase of planning for the General Library's bibliographical system will take place during the period January through April 1978. A number of staff members will work either individually or in small groups on particular aspects and problems related to freezing the present card catalog system and changing to new forms of display. For each assignment, a written report will be prepared by the end of the four-month period; these reports should serve as road maps for the implementation period covering the next several years. During the first four months of 1978, all those engaged in these assignments will meet approximately once each month as a group, together with the University Librarian and the Associate and Assistant University Librarians, who, with the addition of the Head of the Catalog Department and the Head of the Systems Office, will act as a coordinating group for this phase of the planning.

As the written reports covering the various assignments are finished, they will be circulated widely in the General Library for comment, discussion, and suggestions for revision. After an appropriate period for evaluating reaction and making requisite changes in the content of the reports, the actual work necessary to build and implement the new bibliographical system will begin.

The following list details the areas of individual assignments and the people who will be engaged in working on them. Questions and issues to be addressed have been prepared for each of these areas and these brief papers should serve as a point of departure for the intensive planning efforts during January through April. There will be, of course, some inevitable overlapping in the various areas; the monthly meetings and the existence of the coordinating group are intended to lessen the amount of duplicative effort.

## FUTURE OF THE CATALOGS

"Branch" considerations A (Original Cataloger; Assistant Head of large branch library)

Scope extends to catalogs and files other than Author/Title, Subject, Official, Loan Stack Shelflist, Depository, and CSR catalogs.

What should the configuration for bibliographic display consist of in branch libraries and other specialized public service units of the General Library for the period from now through 1985? When should card catalogs in these units cease to be maintained?

What provision should be made for continued access by call number (shelflist)? Should a catalog card continue to be provided for all branch shelflists? What requirements should be set in order to cease maintenance of branch shelflists in card form?

What opportunities should be provided, if any, for local deviation from basic General Library cataloging policies (i.e., conformity to and compatibility with Anglo-American Cataloging Rules, Library of Congress practice, LC Subject Headings and classification)? What policies and practices should govern the possibility of branch library additions to a bibliographic record such as (1) additional added entries, including variant titles, additional name headings, variant or additional series, (2) additional subject entries, (3) other information in the form of notes? If any such additions are to be permitted by policy, what specific mechanisms should be developed for submission and review of such data?

To what extent should 'temporary' or 'special' locations be reflected in the bibliographic data base? That is, should the bibliographic data base include and display (1) reserve status, (2) 'reference' status, (3) other special locations? If so, what procedures should be adopted for including these data?

What 'authority' or cross-reference information should be provided for branch bibliographic display? (To be coordinated with work of Links and Authorities team)

"Branch" considerations B (Original cataloger, with liaison representatives from 1) Special Collections, 2) Music, 3) Undergraduate, and 4) Forestry libraries.)

(Should work within the context of general recommendations regarding branch bibliographic display developed by Branch considerations A team)

What specific policies should be followed for units which now deviate significantly from our basic cataloging policies: Bancroft, Music, Forestry and Forest Products? To what extent should differing practices regarding name and subject headings and classification policy be continued? For each of these units, how should data be submitted to the basic bibliographic file?

For the above units and for Moffitt Undergraduate Library, in what form should bibliographic data regarding holdings of these units be distributed? Should there be any distribution of bibliographic data other than that contemplated for other units of the General Library? If so, what should be provided? (Any recommendations for additional bibliographic products should be accompanied by specifications as to format, content, access points, frequency, and cost estimates)

Record formats and display specifications (Head of Catalog Dept.; Head of receiving unit in Acquisition Dept.; staff member from Cooperative Services Dept.)

Develop in specific detail the configuration of bibliographic display for the General Library system through 1985.

Assume that the 'new' catalog data will be displayed principally in microforms for public use, but that a transition over the period from 1980-1985 will occur, with on-line access to bibliographic data increasing substantially.

What specific configurations should be adopted for the microform display? Register/index? If so, what data elements should be provided in the various indexes? What pattern of indexes should be adopted?

Main and added entries and titles
Subjects
Call number

Main and added entries
Titles
Subjects
Call number

Name headings (personal and corporate)
Topical subjects
Call number
Series

OR, should the microform configuration be based on brief entries under all but one of the various indexes, with one index providing a full bibliographic record?

Provide a recommendation for a specific frequency pattern for the microform display configuration.

Assume the desirability of combining the microform display configuration for fully cataloged materials with records for on-order and in-process items (the categories of records now represented in the Catalog Supplement). Will this be possible? If so, formulate specific proposals for clear user identification of items in various stages of processing. Will the recommended pattern of issuance for this microform display configuration for public use necessitate an additional microform product or set of products for internal (technical service) access? Or should internal access be based on on-line access to records maintained in one or more processing utilities?

What provisions should be made for shelflist access (a) in the immediate future, i.e., during the period when retrospective bibliographic records are for the most part in manual form only, and (b) on a long-term basis, looking toward the time when most or all bibliographic records for General Library collections are in machine readable form?

Indicate, with regard to specific recommendatioons in this area, the degree to which specific aspects of the display formats can be changed with comparatively minor cost burdens and disruption of public and technical service functions, and which aspects (once adopted) should be regarded as relatively fixed in view of these considerations.

Serials (Head of Serials Dept.; Original Serials Cataloger; Head of Serials Database Input Unit)

Develop the configuration of bibliographic and holdings display for serials in the General Library system through 1985, with particular attention to the following points.

To what extent should information regarding serials be reflected in the bibliographic display for the General Library?

Should serials be represented at all?
If so, under what access points should they be represented? Main entry? Title? Added entries? Subjects?
To the extent that serials are represented, should the representation follow the same pattern as for monographs if a register/index format is adopted?
Should any holdings information be provided in such representation, and if so, under which access points? Beginning date? Complete hodlings for inactive titles?

If a separate display is to be provided for serial information (whether or not some information regarding serials is to be included in the display(s) for monograph items), describe the nature of this display with regard to:

access points
completeness of bibliographic and holdings information under all categories of access points
frequency
microform and/or hardcopy

Describe the relationships these displays bear to files containing serial data now existing in the General Library:

Berkeley Serials Union List
Author/Title Catalog
Official Shelflist
Central Serial Record
  entering files:
    Serials Department
    Documents Department
    Branch and other locations
Branch card catalogs

In view of what is known regarding the choice of a bibliographic utility for the UC library systemby January 15, 1978, recommend steps to be taken regarding the integration or linkage of the Berkeley serials system with the bibliographic utility (BALLOTS or OCLC).

Identify in chronological order, and with estimates of personnel needs and other requirements, the steps to be taken to accomplish the recommendations made above through 1985. Operations should be characterized as 'essential' or 'desirable,' and goals (such as completion date, or number of records to be processed on an annual basis) should be stated.

Authority structure and links (Principal cataloger; Original cataloger)

What general and specific policies should be adopted regarding references from variant forms of names and subject headings in and between the old and new systems of bibliographic display? In addressing this point, consider the adoption of AACR 2 by the Library of Congress and the UCB General Library in 1980, and an expected substantial increase in the number of headings to be changed beginning then.

Will the policies recommended be applicable to any form of display for the 'new' catalog, i.e., card, microform, on-line?

What policies should be followed by catalogers regarding the establishment of names and subject headings for the 'new catalog? In what instances should the 'old' catalog be searched for identical, variant, and conflicting headings? What practices can be adopted to minimize the human effort and cost while assuring adequate bibliographic access to the collections?

For such links as are recommended between the 'old' and 'new' catalogs, what legends should be provided in the bibliographic display? Should the legends explicitly refer users to the 'other' display? Should the legends reflect a time distinction (i.e., 'For works cataloged before 1980...')?

What policies should be adopted when records in the 'old' catalog system are modified? Consider modifications based on transfer, change of format (i.e., hardcopy to microform), additions to multiple-volume sets, closing of serial titles, and added copies in different locations.

Non-Roman alphabet records (Head of Special Languages Section in Catalog Dept.)

Present specific recommendations regarding the inclusion, exclusion, and romanization of bibliographic data representing items in non-Roman alphabets acquired and added to the General Library collections in 1980 and after. With reference to particular existing card catalogs, indicate how these policies should affect the maintenance or closing of the card catalogs: specifically, catalogs and shelflist of the East Asiatic Library and the Main Library central catalog system.

In view of anticipated technological and cost developments with regard to representation of various character sets in machine-readable form, set forth guidelines for the General Library's long-range policies in this area. What long-range goals should be adopted regarding separate or integrated files for bibliographic records representing Roman-alphabet and non-Roman alphabet materials?

Public and staff relations (Reference librarian, Undergraduate Library; Assistant to the University Librarian)

List all groups likely to be affected by the changes in bibliographic display to an extent which warrants special attention directed toward informing these groups regarding likely changes, securing feedback and participation in planning, and preparing for effective use of the changed bibliographic system.

- Campus administration
- Senate Library Committee
- Faculty
- Graduate students
- Undergraduate students
- On-site users (in general)
- Initiators of telephone queries
- OTHER
- General Library staff members
  - Public service
  - Technical service
  - Other
- Institute libraries
- Other UC libraries
- Stanford

Develop a program, with accompanying chronology, of specific informational and 'public relations' efforts which should be directed to these various groups, including:

General level of detail and content
Format: e.g., verbal group presentation, slide/tape presentation, brochure, graphic posters/signs, memoranda, Faculty Newsletter
Means for obtaining feedback, response, participation.

Make recommendations regarding people and units to be assigned to this program; estimate costs.

Participate in all public and staff relations activities connected with the bibliographic system planning during the period January through April 1978.

Physical facilities and equipment (Senior Analyst, Systems Office)

Develop equipment, space, building modification (e.g., wiring) needs for the future system of bibliographic display. Include a phase transition to on-line access for a major portion of public and staff access to bibliographic data. Re-study, refine, and verify previous projections of use* under the future system; relate these findings to the needed number of access devices of various types.

What organizational assignments should be made for continuing review of equipment and physical facilities: microform readers, microform reader-printers, on-line terminals, file and display arrangements for microforms (e.g., fiche holders); use justification for additional equipment?

Recomend specific policies for purchase, lease, and maintenance contracts with regard to specific types of equipment.

Develop cost estimates for the period through 1985 for equipment, maintenance of equipment, and building modification.

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*Recommendations should include methodology utilized for use projections.

Liaison with Universitywide (Head, Technical Services; Head, Systems Office)

Maintain liaison and work towards compatibility with Universitywide planning for a UC union catalog system. Communicate budgetary, technological, and networking developments to Universitywide staff members and to appropriate General Library personnel.

Liaison with bibliographic utility (BALLOTS or OCLC) (BALLOTS Coordinator, Catalog Dept.; Analyst/Programmer, Systems Office)

Serve as coordinator(s) between the bibliographic utility and persons and groups involved in planning future bibliographic operations and display in the General Library. Based on the evolving assumptions regarding record format and bibliographic display, develop cost parameters and specific methods for delivery of various bibliographic products, encompassing the bibliographic utility, any other non-UC agencies (such as microform service bureau), UC Data Processing Center, and specific library units and personnel.

Technical/cost consultants (Head, Systems Office; Analyst/Programmer, Systems Office)

Advise on feasibility and prepare cost estimates as requested by individuals or teams working on various assignments.

Catalog Use Consultants (Two Heads of branch libraries; Reference Librarian; Head, Cooperative Services)

Advise on issues relating to public use of catalogs as requested by individuals or teams working on various assignments. Review working papers for public use implications.

Coordinating Group (University Librarian; Associate University Librarian for Public Services; Associate University Librarian for Technical Services; Assistant University Librarian for Collection Development and General Reference Services; Head, Catalog Department; Head, Systems Office)

Appendix II

# UCLA

## Working Group on Public Catalogs

### Subgroup II - Interim Report
### Long Term Goals-Alternatives

January 10, 1975

Members

Bill Bergeron
Sue Gullion
Dorothy McGarry
Margaret McKinley
Mary Ryan

# APPENDIX

## AVAILABLE COST ESTIMATES

1. UC Santa Cruz estimates:

| | |
|---|---|
| Automated book - catalog | $37,000/yr. |
| Computer output microform | 28,000/yr. |
| On-line retrieval system | 39,000/yr. |

(all figures assume 18,000 new titles per year)

Data from: UCSC, Future Library Catalogs, October 22, 1974. (Available in WGPC reading file).

2. OCLC estimates:

$1.98 for 1st use of a record, including 6% discount; for prepay. $2.11 if not prepaid. 3.4 cents per card produced. Additional: programming for format of cards $160; initial installation and training. If trainer came here, training fee expenses plus $25 per hour. Terminals available 4 A.M. to 5 P.M. (PST), M-F. Will increase 4 hrs. soon. Additional terminals over formula no. (article in LRTS, Fall 1974 says approximately $2,980 per year) Formula: 1 terminal for 11,000 titles, for academic libraries. 87 cents per 1st time use with line charges separately is one contract. Sunnyvale: 95 cents per title, 5 cents per card, $14 per hour line charges.

Per record for computer tape of own file approximately 8-10 cents. Walsh College (in Ohio) $1.69 for 1st time hit; SUNY (albany) 92 cents per hit - plus line charges. $25 overhead fee per terminal. Beehive OCLC 3,800 terminals $3,800,00. Many terminals run $1,000 - $15,000.

Data from: interviews with representatives from OCLC and 2 user libraries at CLA meeting 11/13/74.

3. BibNet estimates:

$9,500 per year for cataloging installation, for each set of computer terminals-printers, or $9,000 per year. Connect time $45 per hour. (Data point 2200). 90 cents if use the MARC record. Plus printing costs. Data base available 5 A.M. to 5 P.M. (PST). Initial installation charge $1,310. If MARC tape run off instead of cards, extra machine approximately $200 more per month. Casettes are $5 each.

Data from: interview with representative from BibNet, at CLA meeting 11/13/74.

4. CATSUP estimates:

| | |
|---|---|
| Costs for microfiche production: | $1.13 (Master)<br>$ .09 (Copy) |
| Costs for book form: | $450 total per week for 12 volumes (3 copies, 4 volumes each) |

Data from: Systems Dept. 12/74.

5. Biomed estimates: (relating to their 1972-74 book catalog)

Size estimates: For each book in the file there are, on the average:

1. For subject catalog - 2 entries
2. For main catalog - 1 main entry
   2 added entries and a
   small number of cross references
3. For call number catalog - 1 entry

Tests to date indicate the following number of entries, on average, per page (60 line computer paper, assuming columns are set to three for subject catalog, two for the other two catalogs):

1. Subject catalog - 11.8 entries/page
2. Main catalog - 20.0 entries/page
3. Call number catalog - 8.4 entries/page

If we were to make a photo reduced page, such as we do now for our published serials list, we would use about 100 lines per page and get about 60% more on each page.

For an approximately one year book of our cataloging, I estimated 7,000 books. Page sizes figure out as follows:

1. For subject catalog:
   (7,000 books)(2 entries/book)/(11.8 entries/page) = 1,190 pp.
2. For main catalog:
   (7,000 books)(3 entries/book)/(20.0 entries/page) = 1,050 pp.
3. For call number catalog:
   (7,000 books)(1 entry/book)/(8.4 entries/page) = 835 pp.

For a photo reduced set, it would take about 65% of the above number of pages, or 770 pp., 680 pp. and 540 pp., respectively. By comparison, our latest published serials holdings list is 325 pp. long.

File Maintenance Costs

I have written a program which generates and sorts into proper order all of the records necessary to produce the book catalogs mentioned above (also, for History Division catalogs). As new records are added to the system, at perhaps two to four month intervals these new records will be processed and merged into the master file containing all prior records.

Costs to maintain this file average out to 3.75 cents per book (2.75 cents to generate and sort a batch of 600-1,000 books and 1.00 cent to merge new records into the master tape file). Thus for a year's operation of 7,000 books this part of the costs are:

(7,000 books)(3.75 cents/book) = $263.00

## Costs to Produce the Book Catalog Listings

Experiments up to now show a fair rule of thumb to be about $7.00 per 1,000 books listed by the computer. Therefore, to make the 7,000 book-size catalogs, the cost would be about $50 for each of the three catalogs discussed. (Assuming we just did the subject and main catalog, combined costs would be about $100)

## Costs to Have Duplicates Made

### A. Microfiche

Keeping the 7,000 book run as the base, we would have printouts of size:

| | |
|---|---|
| 1. Subject catalog - | 1,190 pp. |
| 2. Main catalog - | 1,050 pp. |
| 3. Call number catalog - | 835 pp. |

207 pages of computer paper go onto one fiche. Therefore, for the subject file six fiche are needed; for the main book five fiche; and for the call number file only four. The cost of fiche is $1.35 for each master and 12 cents for each additional copy. Costs would be:

| | 500 Copies | 100 Copies |
|---|---|---|
| 1. Subject Catalog | $367 (.73/copy) | $80 (.80/copy) |
| 2. Main Catalog | $306 (.62/copy) | $63 (.63/copy) |
| 3. Call Number Catalog | $245 (.49/copy) | $53 (.53/copy) |

## Printing a Book

My only benchmark here is from our experience with the annual serials list. Quotes for a 275 page list were $700 for 250 copies and $1,125 for 500 copies. Proportional costs for the book catalogs would be:

| | 500 Copies | 250 Copies |
|---|---|---|
| 1. Subject Catalog | $3,150 (6.30/copy) | $1,950 (7.80/copy) |
| 2. Main Catalog | $2,800 (5.60/copy) | $1,720 (6.95/copy) |
| 3. Call Number Catalog | $2,220 (4.45/copy) | $2,370 (5.50/copy) |

Data from: Memo to Louise Darling from Jim Fayollat, April 3, 1973.

80 BEST COPY

A. Introduction

1. For purposes of this report, it is assumed that long-term means 25 years.

2. For purposes of this report, it is assumed that interim must be considered in two phases: recommendations if interim is to be less than 10-15 years, and recommendations if interim is to be more than 10-15 years.

3. Whatever the output eventually selected, it is essential that it be based on a machine-readable data base.

B. Long-term goal - on-line system

1. Reasons

   a. Currency for user.

   b. User can quickly do more sophisticated searching using Boolean logic.

   c. Possibility of expanded services to readers, e.g. terminals in individual university departments, etc.

   d. Ease of updating and correcting, for staff.

   e. Most effective means of accessing machine-readable data base.

   f. Unsatisfactory nature of other alternatives (see B 9)

2. Basic premise: Flexibility in meeting special needs of individual units' patrons and catalogs is absolutely basic to the success of the system. If such flexibility cannot be provided by a UC-wide, or larger, system, then a separate UCLA on-line system would be required.

3. Essential features

   a. Close cooperation among public service, technical processing and systems staff in design and maintenance of system.

   b. Ability to update on-line.

   c. Provision for handling all types of library materials.

   d. Authority files (subject, name and series) available on-line.

   e. Sufficient terminals to avoid queuing problems.

   f. Capability of handling works with temporary locations, with multiple locations, with split locations, and/or multiple call numbers.

g. Necessity for linkage with other modules of a total system.

h. Sort field of length sufficient for searching.

i. Provision for referrals for uncataloged materials, e.g. maps, government publications, pamphlets, etc.

j. Security for data base.

k. Back-up system.

  I. Microform register-index

    (A) Since register would have to be produced only once; and only the indexes updated, would be less expensive than standard microform catalog.

    (B) Adequate if use restricted to back-up.

    (C) Readers for both public service and processing use would be required.

4. Potential problem areas

a. Special types of materials

  I. Serials, "works in parts" and other multi-volume works.

    (A) Need to relate records for continuing publications between old and new systems.

    (B) Need to coordinate serials handling with any separate serials system.

  II. PATE and CATSUP materials.

    (A) Should be included in data base.

  III. Newspapers.

    (A) Refer to specialized machine-readable newspaper file.

b. Units which do not follow LC cataloging.

  I. Biomed.

    (A) NLM's interpretations of AACR are followed.

    (B) NLM's authority files followed for corporate and personal names.

    (C) Subject heading list composed of subject headings from NLM, LC, NAL, and many taxonomic headings created by Biomed.

(D) Call numbers based on NLM classification system.

II. Law.

(A) Revised Yale form "classification" used, as well as LC (LC schedule K not fully developed)

(B) Differences from LC in some entries, e.g. form entry for compilation rather than editor; for decision of court, use California - Report - Supreme Court, where - Report - is a filing device not used by LC.

5. Auxiliary files and products

a. In-process file.

I. Files need to exist in either an on-line system or a manually maintained system.

b. Serials records, including holdings.

I. Files need to exist in either a machine-readable or a manually maintained system.

c. Shelflists.

I. Either the entire retrospective shelflist must be converted to an on-line system, or a complete card shelflist must be maintained, so that one total shelflist is available.

d. Cards needed for external obligations, e.g. NUC, PSRMLS union catalog, Music Library contributions to International Union List of Imprints to 1800, EMS and PSL contributions of cards for congresses to union list.

6. Limitations

a. Computer "down" time.

b. Terminal breakdowns and maintenance problems.

c. Space for terminals and printers.

d. Queuing.

e. Instruction needs.

7. -Cost

a. Developmental.

b. Terminals and printers.

I. Purchase or rental.

II. Maintenance and insurance.

  c. On-line storage.

  d. Costs of searching data bases.

  e. Costs of maintaining data base.

    I. Programming.

    II. Editing.

    III. Additions and deletions.

  f. Microform back-up system.

  g. Cost of electrical installation.

  h. Cost of producing cards for external obligations, and shelflist if maintained in card form.

8. Disposition of pre-existing catalogs.

  a. If funding permits, total retrospective conversion would be the ideal.

  b. If total retrospective conversion is not possible, then partial conversion would be desirable.

  c. Any part of the card catalog that is not converted to the on-line system must be maintained, e.g. withdrawals, call number changes, location changes, open entry changes must be made.

  d. Linkage must be provided between any part of the card catalog that is not converted and the new system.

9. Rejection of other alternatives.

  a. Printed book catalog.

    I. Reasons

      (A) Could not be kept sufficiently current due to the cost, resulting in inflexibility and need for patrons to check multiple issues.
      (B) Space for shelving and use.

  b. Register-index (printed or microform)

    I. Reasons

      (A) Subject and author searches too difficult and time consuming for average patron, and too time consuming for staff.

c. Card catalog

1. Reasons

(A) Rapid growth.

(B) Problems of adequate maintenance of large file.

(C) [illegible]terioration of the cards.

(D) Susceptibility to mutilation and theft.

(E) Impossibility of adequate security.

d. Microform catalog.

1. Reasons

(A) User cannot do as sophisticated searching as with on-line.

(B) Cannot link with other parts of the library system, e.g. acquisitions, circulation, serials.

C. Interim goal (if interim is projected to be 10-15 years or less) - continue existing card catalogs.

1. Reasons

a. Closing present card catalogs and starting new ones for this interim would eventually lead to two closed card catalogs, an extremely unsatisfactory situation both for users and staff.

b. Time and expense needed to develop microform, printed book catalog, register-index, or similar system for this interim would be more productively spent in preparing for functioning on-line system.

c. Serials, "works in parts" and other multi-volume works can be handled without the need for new methods.

2. Essential features

a. Cards to be produced from machine-readable data base so data could be used later in on-line system.

b. Must be maintained as parallel system until on-line system operating and proved satisfactory.

c. Intensified editing policy.

d. Cross references to be provided when de-superimposition results in changed form of entry.

3. Potential problem areas.

   a. De-superimposition.

   b. Projected changes in LC subject headings.

   c. Space.

   d. Need for continuation and expansion of catalog information service.

4. Cost.

   a. Costs of producing cards.

   b. Costs of filing cards.

   c. Costs of editing.

   d. Costs of maintaining machine-readable data base.

      I. Programming.

      II. Editing.

      III. Additions and deletions.

   e. Cost of new card catalog units.

5. Rejection of other alternatives.

   a. See C I a-b.

D. Interim goal (if interim is projected to be 10-15 years or more) - microform catalog.

1. Reasons

   a. Less costly than a printed book catalog.

   b. Less difficult and time consuming to use then register-index.

   c More compact data storage than card or book catalogs.

   d. Copies can be kept inexpensively at multiple locations.

2. Coverage.

   a. Should be restricted to UCLA, not UC-wide.

      I. Reasons

         (A) Too time consuming and difficult to search in a large microform file.

         (B) Complexity and expense of merging data bases would greatly delay implementation.

b. URL catalog in contrast to branch catalogs.

I. Problem of dictionary vs. divided.

II. Different filing rules.

III. Subject heading differences.

IV. Name variations.

3. Essential features.

a. Close cooperation among public service, technical processing and systems staff in design and maintenance of system.

b. Must be updated frequently.

I. For divided, update name/title weekly and subject monthly.

II. For dictionary, update weekly.

c. Provision for handling all types of library materials.

d. Authority files (subject, name and series)

e. Sufficient microform readers to avoid queuing problems.

f. Capability of handling works with temporary locations, with multiple locations, with split locations, and/or multiple call numbers.

g. Provision for referrals for uncataloged materials, e.g. maps, government publications, pamphlets, etc.

h. Must be phased into long term goal.

i. Existing card catalogs must be maintained as parallel system until microform system operating and proved satisfactory.

j. Microform system must be maintained as parallel system until on-line system operating and proved satisfactory.

k. Back-up system.

I. None needed. Security of the machine-readable data base must be provided for.

4. Potential problem areas.

a. Special types of materials.

I. Serials, newspapers, "works in parts" and other multi-volume works.

(A) Need to relate records for continuing publications between old and new systems.

(B) Need to coordinate serials handling with any separate serials system.

ii. PATE and CATSUP materials.

(A) Should be included in data base.

b. Units which do not follow LC cataloging.

i. Biomed.

(A) NLM's interpretations of AACR are followed.

(B) NLM's authority files followed for corporate and personal names.

(C) Subject heading list composed of subject headings from NLM, LC, NAL, and many taxonomic headings created by Biomed.

(D) Call numbers based on NLM classification system.

ii. Law.

(A) Revised Yale form "classification" used, as well as LC (LC schedule K not fully developed)

(B) Differences from LC in some entries, e.g. form entry for compilation rather than editor; for decision of court, use California - Report - Supreme Court, where - Report - is a filing device not used by LC.

5. Auxiliary files and products.

a. In-process file.

i. Files need to exist in either an on-line system or a manually maintained system.

b. Serials records, including holdings.

i. Files need to exist in either a machine-readable or a manually maintained system.

c. Shelflists.

i. Either the entire retrospective shelflist must be converted to an on-line system, or a complete card shelflist must be maintained, so that one total shelflist is available.

d. Cards needed for external obligations, e.g. NUC, PSRMLS union catalog, Music Library contributions to International Union

List of Imprints to 1800, EMS and PSL contributions of cards for congresses to union list.

6. Limitations.
    - a. Loss or damage to microform.
    - b. Microform reader and printer breakdowns, and maintenance problems.
    - c. Space for microform readers and printers.
    - d. Queuing.
    - e. Instruction needs.

7. Cost.
    - a. Developmental.
    - b. Microform readers and printers.
        - I. Purchase.
        - II. Maintenance.
    - c. Cost of maintaining data base.
        - I. Programming.
        - II. Editing.
        - III. Additions and deletions.
    - d. Cost of producing microform.
    - e. Cost of electrical installation.
    - f. Cost of producing cards for external obligations, and shelflist if maintained in card form.

8. Disposition of pre-existing catalogs.
    - a. Differing problems amoung URL and various branches: possibility of some units' card catalogs being continued until long term goal reached.
    - b. All closed card catalogs must be maintained, e.g. withdrawals, call number changes, location changes, open entry changes must be made.
    - c. Linkage must be provided between closed card catalogs and the new system.

9. Rejection of other alternatives.

a. Continuation of all existing card catalogs.

  1. Reasons.

    (A) Rapid growth.

    (B) Problems of adequate maintenance of large file.

    (C) Deterioration of the cards.

    (D) Susceptibility to mutilation and theft.

    (E) Impossibility of adequate security.

b. Beginning new card catalogs.

  1. Reasons.

    (A) This would eventually lead to two closed card catalogs, an extremely unsatisfactory situation both for users and staff.

    (B) See D 9 a 1, (A), (C)-(E).

c. Register-index (printed or microform)

  1. Reasons.

    (A) Subject and author searches too difficult and time consuming for average patron, and too time consuming for staff.

d. Printed book catalog.

  1. Reasons.

    (A) Could not be kept sufficiently current due to the cost, resulting in inflexibility and need for patrons to check multiple issues.

    (B) Space for shelving and use.

SOLINET
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# Computer Output Microfilm (COM): An Alternative to Card Catalogs for SOLINET Members

Prepared by: SOLINET Committee on COM
Randall Cravey, SOLINET, Chairman
Helen Citron, Georgia Institute of Technology
Michele Dalehite, SOLINET
Nancy Eaton, Atlanta Public Library
James Young, Georgia Institute of Technology

Southeastern Library Network (SOLINET)
Suite 410, 615 Peachtree Street, N.E.
Atlanta, Georgia 30308

## Computer Output Microfilm (COM):
## An Alternative to Card Catalogs for
## SOLINET Members

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- REMAINDER OF REPORT AVAILABLE
FROM SPEC -

## I. PREFACE

Charge for SOLINET's Committee on COM. The SOLINET Committee on COM has been charged with drafting a plan for SOLINET's role in COM catalog production for SOLINET member libraries. The charge has been initiated by the fact several SOLINET members have presented to the SOLINET staff strong requests for various COM products. These requests express a current need for microfilm catalogs and the need does not seem to be limited to either geographical or special interest groups. Also, in view of the announced Retrospective OCLC-MARC Distribution Service Run scheduled for spring 1977, it is anticipated that both the intensity and the number of requests will increase. Thus, a demand for microfilm catalogs is being established. To meet the demand, SOLINET must seek and determine the best alternatives for fulfilling both the short-term and long-term needs of the membership. To aid in this determination, the SOLINET Committee on COM, composed of members from SOLINET and several area libraries, was created to advise SOLINET in its search for viable alternatives.

Purpose of Report. The purpose of this report is threefold. Its primary purpose is to record information on the various aspects of microfilm catalog production and its utilization. Secondarily, it is to record alternatives that may be considered by SOLINET as it defines its role in microfilm catalog production. Finally, its purpose is to serve as an information document for the committee and those persons involved in microfilm catalog production at each library in the membership.

## V. DATA BASE CONSTRUCTION AND MAINTENANCE

Prior to generating effectively any computerized products other than reports on current activity, a machine-readable catalog data base must be created and maintenance procedures implemented. The purpose of this section is to discuss many of the considerations which must be reviewed prior to the establishment of data base construction and maintenance procedures. Each of the following subsections deals with a different consideration.

Local Operations Versus Commercial Operations. The construction of a data base may utilize local operations, commercial operations, or a combination of the two. Several SOLINET members have, available for their use, the services of a local data processing center. Computer services furnished by these centers are often gratis or significantly discounted from commercial rates. Services received through such data centers are, in this report, termed "local operations." Other members must depend on outside sources for data processing support. Computer services acquired by these members and paid for at commercial rates are termed "commercial operations."

Conversion To A Data Base. Creating a catalog data base is often as perplexing as it is overwhelming. For a SOLINET member beginning at time n, the member can begin building its own data base from OCLC-MARC tapes. Before data base construction can begin, the member must decide if construction will be through local operations or through commercial operations. After this has been determined and after a proven computerized data base maintenance system is operational, construction may begin. The earliest available OCLC-MARC tape should be used as the initial input for the establishment of the data base. Subsequent tapes, processed in order of creation, can then effectively be used to construct and maintain the data base. After a period has elapsed wherein the library has had the opportunity to become familiar with the data base and its maintenance procedures, a sample catalog should be displayed so it can be reviewed for integrity. Integrity may be confirmed by comparing the contents of the sample to the corresponding entries in the shelflist. After determining from a series of samples and other test procedures that the machine-readable data base is compatible with the shelflist, and that adequate maintenance procedures are employed, actions may be initiated which would lead toward the closing of the public card catalogs.

Closing the public card catalogs means no additional cards will be added to them when new titles are acquired and cataloged by the library. Before closing occurs, a second form of public display must be implemented. Once implemented, in order to determine if the library holds a particular title, a two-step look up procedure may be necessary; a search in the closed card catalog, plus a search in the new form of display. To eliminate this two-step procedure, all retrospective holdings (those holdings held by the library yet unrecorded in the catalog data base) must be recorded.

Recording retrospective holdings can be accomplished through several methods. A few possible methods are listed below.

Retrospective conversion methods:

- Use cataloging terminal on a time-available basis.
- Fund a retrospective conversion project using the OCLC system, e.g., Florida COMCAT Project.[7]

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[7] Exhibit H, Appendix, provides cursory statistics resulting from the Florida COMCAT Project.

- Create a machine-readable LC card number register for respective holdings and pass the numerical register against a MARC (Machine Readable Catalog) compatible data base; "no-hits" will have to be handled separately.
- Employ a commercial service bureau to convert retrospective holdings, e.g., Bro-dart, Science Press, etc.,

Before a retrospective conversion is achieved, microfilming the contents of a card catalog by means of a rotary camera may be desirable. This practice has several merits, including file preservation and security. As recorded in the Library Journal,[8] the University of Washington, through the aid of temporary student help, microfilmed 2.8 million cards in 20 days for a total cost of $2,930. Even with the merits of such projects, the filmed catalogs are missing the reinforcement and flexibility provided by a machine-readable data base. Because of these missing characteristics, card catalog microfilms are viewed in this report as a poor, long-term alternative to COM catalogs.

Initial and Continuing System Expenses. Catalog data base system expenses are those expenses related to the establishment and continued use of both manual and computerized procedures which deal with the construction and maintenance of the data base. For local operations these expenses are embedded and may be hard to identify. For commercial operations, these expenses are more visual. In either case, attempting to quote generalized values is speculative. Since the expenses for local operation are embedded, they receive the greatest emphasis in the following paragraphs.

Any computer system designed to support a data base has a limited life expectancy. Five years is the standard assumed within this report. This five-year standard does not mean a given system is redesigned from the beginning every five years. It does mean most systems are modified and enhanced over a five-year period to the extent that relating each portion to its initial counterpart becomes difficult. If system evolution does not occur, technological changes in the industry will force a complete redesign. Thus, initial costs for a computerized system should be effectively amortized over a five-year period. Also, continued research and development costs for successive systems can be charged as maintenance expenses rather than pooled into a five-year escrow account. Either way, these costs are real and must be borne by the library, unless these computer-related expenses are treated as gratis and are paid for by a second party. The development of a tape-oriented data base system with no authority control can be accomplished in four to five man-months. Such a system would probably be adequate for a small library with no branches or special considerations. Changing any one of these variables could substantially increase the number of man-months required.

The life expectancy of a data base system may also be dependent upon the size of the data base. With the acquisition of new titles, the data base will have a tendency to increase continously in size. When compared to data bases serving financial institutions, the growth rate for the catalog data base often seems fast and unlimited. Without the proper design, the computerized system supporting the catalog data base can quickly become outmoded. Even with a proper design, size limitations are imposed. Economies of scale work in both directions. Attempts to utilize a system designed to support 750,000 titles may prove impractical when only 30,000 titles are recorded, and vice versa.

---

[8] "Apprehensive Librarians Microfilm Catalog."

Data Base Characteristics. The characteristics of a catalog data base and its records can be as diverse as the individuals responsible for its construction. No national standards exist for the construction of a machine-readable catalog data base. During the 1960's the MARC[9] communications format was adopted by the Library of Congress as a structure for transferring records between data bases. This structure was not designed to be an internal operating format. Regardless, due to the emphasis placed on resource sharing, it can be recommended that any catalog built to serve for an extended period must: 1) contain the data, tags, and subfield indicators that are convertible to or compatible with the current MARC II format, or 2) contain an index that will allow easy reference to original LC copy. The first of these two recommendations is the preferred. Without the capability to receive and transmit complete bibliographic records in the MARC II format, a library may find itself in a position where participation in cooperative ventures may be financially prohibitive, require a massive reconversion, or dictate the display of less-than-accurate information.

The architects of a library's data base must be aware of the multiple record formats that are included in the MARC design--books, serials, maps, and so forth. Even though the basic record formats are the same, special procedures are required for each format, so the variety of data field combinations can be accommodated.

A catalog data base often has excessive storage requirements when compared to data bases constructed for administrative functions. Records are usually maintained in variable-length format with each record averaging 625 characters[10] or more in length. Magnetic tape is one of the most common storage mediums. Approximately 30,000 records in MARC II format, blocked one, ASCII code, can be stored on one 24,000 feet, 1600 bpi reel of magnetic tape.

OCLC-MARC Tape Characteristics. The characteristics of the OCLC-MARC tapes are best described in the document OCLC-MARC Distribution Service.[11] Several characteristics related to the sequence of transactions on the tapes, data content in the records, and card profile specifications are not mentioned in the OCLC document. They are included in the following list.

OCLC-MARC tape considerations:

- Duplicate records, records with the same OCLC number, may appear on one tape.
- No transaction sequence number is included; records appear in order of input.
- Data bases organized and maintained by class number may experience special problems, e.g., correcting the local LC call number.
- Holdings information in the 049 field is not accumulated and carried forward by OCLC. Thus, cumulative copy/volume information must be re-input with each related transaction or accumulated during the computerized data base maintenance procedures.
- Stamp field information printed on the catalog cards is not included in the OCLC-MARC records.

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[9] U.S. Library of Congress, MARC Development Office.

[10] Depending upon the source, this 625 character average will vary from 450 to 750 characters. As of Georgia Tech's latest analysis, the OCLC-MARC records which include local field information, on an average exceed 700 characters.

[11] Primmer.

- Series statements occasionally contain pronouns which refer back to the main entry.
- Tracing indicators should be maintained or supplied as needed.
- User option data (910 field) is not included in the OCLC-MARC records unless the field is modified by the library.
- Non-LC subject headings will not be distinguished by brackets.
- Oversize designations are not included.
- All call numbers present in the bibliographic record are included when the PRODUCE and UPDATE keys are depressed.
- All local fields must be supplied by the terminal operator for each "replace" or "update" command.
- Local field usage without constant editing contributes toward variations in format and content. Thus, OCLC-MARC records produced before maintenance procedures are stabilized may contain limited usable local information. The adoption of standards for local field input is necessary.
- Libraries anticipating the construction of a private data base should make arrangements for the acquisition of OCLC-MARC tapes before on-line participation begins. Otherwise, acquiring retrospective transactions may prove difficult.

Maintenance Standards and Procedures. The adoption of properly designed maintenance standards and procedures to be exercised by terminal operators is mandatory if the integrity of the data base is to be preserved. The standards and procedures should be recorded and appended to the current handbook for terminal operators. In turn, each terminal operator should become well-versed on both the use and meaning of each standard and procedure. Otherwise, chaos can prevail and maintenance activities can become unpredictable.

Data base maintenance procedures must allow for the addition, revision, or deletion of a new acquisition or an existing title in the data base. A terminal operator should have the capability to record and initiate any one of the three types of transactions through the on-line terminal. For local operations, an alternate set of data base maintenance procedures may be desirable and justifiable. The alternate set would provide additional flexibility by allowing for the submission of special revisions and deletions in some form other than OCLC-MARC directly to the local operations. such a submission would bypass the on-line cataloging system. To eliminate potential problems arising from the use of two sets of maintenance procedures, the alternate set should be used only as a means for resolving complex problems.

Maintenance Reports. An edit list, which details the transactions processed during the computerized maintenance procedures, should be provided. Each transaction should be listed in full bibliographic form noting any related diagnostics. The type of transaction (add, delete, revise) should also be noted. Such notations aid editorial review. Transactions can be listed in various formats ranging from the packed version as carried on the OCLC-MARC tape, to a display format similar to a card or terminal-screen image. Caution must be exercised in defining what is required. Special and elaborate formatting requires special and elaborate computer processing. Special processing in either local or commercial operations means more time, greater expense, or both.

The sequence of the entries on an edit list often conforms to the sequence of the records in the data base. Records stored in a data base that is maintained on magnetic tape are usually arranged sequentially by specified control fields--LC call number, accession number, or a comparable field. Before transactions can be used to update the data base, they must also be arranged into the data base sequence. To achieve this sequence, the transactions are first formatted into a record structure defined by the data base maintenance procedures and the specifications usually require the generation and assignment of a transaction sequence number to each formatted transaction. This transaction number is used in conjunction with the data base control number during sort procedures. The sort procedures sequentially arrange the formatted transactions by data base control number (primary) and the transaction number (secondary). Such an arrangement insures the transactions will be processed in their proper order of occurrence. After all transactions have been sorted, the sorted transactions are used to update the catalog data base with the computerized maintenance procedures, wherein the edit list is produced. (See Figure 1, page 21.)

A summary of the update procedures is also a necessary report. The summary should tabulate file record counts, type of transactions, diagnostics, and other related information. These tabulations are necessary for file auditing and quality control. The summary, in conjunction with the edit list, is useful for identifying problem transactions and serves as means for checking the integrity of the maintenance procedures.

Manpower Requirements. Manpower needed to construct and maintain a data base must not be underestimated. Support must be provided for two areas of specialty: 1) a library data control specialist who is responsible for maintaining the integrity of the data base, and 2) a data processing specialist who is responsible for system maintenance and production. Both areas of specialty may require several individuals. Manpower requirements for these specialties are directly related to transaction volume and system complexity. Most libraries with local support find they must dedicate a minimum of one full-time position to each specialty. For the position of data control specialist, recruits are often members of the technical services staff. As with a terminal operator, recruit qualifications are argumentative. For the position of data processing specialist, a qualified individual should have proven data processing skills plus the ability to comprehend library applications. The utilization of commercial support for data base maintenance may eliminate the requirement for a data processing specialist. In such an instance, the demands and responsibilities placed on the data control specialist increase.

Security. The machine-readable files must be protected with proper security measures. Backups should be provided for two or more generations of all files used in the maintenance procedures. The design and enforcement of proper security measures cannot be overemphasized. For local operations, care must be taken to insure that unauthorized personnel do not unwittingly or maliciously gain computer access to the machine-readable files. Such access can destroy years of work in a matter of seconds. For commercial operations, care must be taken to insure that the ownership of the catalog is not in question. A contractual agreement which details the rights and interests of both parties should be completed. Included in this agreement should be a statement which requires the commercial operation to deliver periodically a current copy of the data base to a vault for safekeeping. The library should have access to this vault. Otherwise, if the commercial firm becomes financially insolvent, acquiring a current copy of the data base may be impossible or impractical. In addition, the library may elect to withdraw from the commercial operations. Withdrawing without guaranteed rights and price schedules can prove troublesome.

**Data Base Integrity**. The catalog data base must be maintained with the same integrity historically given the shelflist. Once the decision has been made to utilize a computerized catalog, a transition should occur wherein the computerized catalog becomes "the catalog" for all recorded titles. To accomplish this transition, a shift in attitude is often necessary. The shelflist should no longer be considered the authority for recorded titles; the shelflist should become only one means of catalog display.

The shelflist, however, must still retain a place of prominence in the library's technical and public service areas of operation. Once the catalog is computerized, the shelflist may be displayed in one of several forms: card, list, book or film. Regardless of its form of display, procedures structured around the shelflist must be established which provide catalogers the capability for noting revisions, additions, and deletions for active titles during the intervals between catalog publications.

**Authority Control**. Authority control with cross-references is an attractive feature of several local and commercial data base systems. This feature permits computerized authority verification during update and maintenance procedures. A number of bibliographic data fields can be verified. Author, subject, and series are the fields most commonly addressed, with subject receiving the greatest emphasis. This emphasis is accentuated by the Library of Congress publication *LC Subject Headings* in machine-readable form. The 8th edition, currently available in print, has not been released in machine-readable form. However, independent compilations of the 8th edition exist and provide a reasonable degree of control.

Authority files are available from sources other than the Library of Congress. One such source is an independently compiled authority file held by either a local or commercial operation. The blind acceptance and utilization of such a file is certainly open to question. A second source for an authority file is a library's own data base. From its data base a frequency-of-occurrence list can be compiled. Conflicts can be noted and corrected, permitting the compilation of a privately-owned file. And, of course, a third source is to key manually all acceptable forms of authority with corresponding cross-references. Acquiring a reasonable file from either of these three sources does require considerable planning, review, and effort.

An authority file must be viewed as an independent data base; a data base that is independent of the catalog data base. Thus, independent maintenance procedures must be provided. The complexity of these procedures depends upon the basic design of the procedures and the amount of editorial review required. The authority file should be offered the same concerns provided the catalog data base; the concerns for security, integrity, storage, maintenance, etc.

Production procedures for authority control must be supported by adequate resources and by well-defined standards and procedures. After all standards have been defined and all procedures are operational, authority integrity for the catalog data base can be imposed in one update operation. Continued authority integrity is maintained by verifying authority data in subsequent cataloging transactions before catalog update procedures are performed.

Hardware Requirements. Hardware requirements for data base maintenance often coincide with what is available. Minimum requirements are hard to define in terms of current technology. It is conceivable that a dedicated computer consisting of 32k memory, 3 magnetic tape drives, 1 card reader, and 1 printer would be adequate hardware resources for data base maintenance. The employment of such minimum hardware is rare. Most existing systems are designed to operate in multi-job environments and consume far more resources than the stated minimum. When one is considering the employment of a proposed hardware configuration, an evaluation of its performance is advisable. One set of common denominators that can be used in evaluating all data base maintenance systems, includes throughput and cost statistics. Although the continuous growth of a library's data base complicates the establishment of valid evaluation criteria, the experiences of the Georgia Institute of Technology for one month's activity, are noteworthy.

Georgia Tech's data base maintenance experience:

- CDC Cyber 70 computer and peripherals
- 125,000 titles in the data base
- 1823 transactions (authority control is not imposed)
  - 1250 additions
  - 422 data base revisions and deletions
  - 151 transaction revisions (duplicate OCLC numbers on transaction file)
- 5.5 hours elapsed time
- $215 computer expenses at commercial rates; $9.92 actual expenses.

When reviewing Georgia Tech's experience, one must be aware of the environment in which they operate. Replicating this environment at a second institution may be impossible or impractical. Therefore, considerable caution must be exercised in using their elapsed time or actual expenses as a frame of reference. One statistic that is notable is the total number of revisions and deletions. Consistently, approximately 30-50% of Tech's transactions are revisions and deletions. Other local operations, also without any form of authority control, experience comparable percentages.

Hardware requirements for commercial operations vary extensively. Rather than review commercial operational experiences, a review of charges associated with data base maintenance is more meaningful. The following rates should be viewed only as models and should not be interpreted as absolute. All rates, unless stated otherwise, are per transaction per update.

Commercial data base maintenance rates:

| Vendor | Data Base | Authority Control |
|---|---|---|
| Auto-graphics | 10¢ | 5¢ |
| Blackwell North America | $50 flat rate | 28¢ |
| Library Interface Systems | 10¢ add; 4¢ revise | N/A |
| Science Press | Included in COM catalog production costs. | N/A |

Additional Considerations. Other considerations must be identified, defined, and examined when data base construction and maintenance procedures are being reviewed. The preceding subsections note some of the primary points. For the sake of brevity, additional considerations are only listed.

Additional data base considerations:

- Support files required
- Products and services to be generated
- Location symbols
- Copy/volume information
- Special collections
- Classification and reclassification requirements
- Other

## XI. ALTERNATIVE SOLINET COM CATALOG PROGRAMS

After reviewing the current microfilm production techniques, some combination of the following alternatives would provide and effective plan for the SOLINET COM Catalog Program.

SOLINET microfilm catalog production alternatives:

1. Encourage and provide the documentation and training for the adoption of an existing successful system, e.g., Georgia Tech's, at other institutions which have both the interest and available resources for local operations.
2. Recognizing the competitive prices offered by service bureaus and acting as an agent for all members, negotiate the most favorable price for catalog data base maintenance and microfilm catalog production.
3. Divide the procedures of catalog maintenance and microfilm catalog production into their respective stages; negotiate the most favorable price for each stage with the intentions that SOLINET will monitor and coordinate all or specified stages.
4. Adopt a successful system, e.g., Georgia Tech's; rent time on a local time-sharing computer system; modify the adopted system to fit the constraints of the time-sharing system; and implement the basic procedures developed by the designers of the adopted system.
5. Design, develop and implement a new system which will create and maintain a union catalog data base; provide a range of institution and union microfilm products; and utilize the computer resources offered through a time-sharing computer system or resources acquired and placed in-house.

All alternatives must be viewed in terms of SOLINET's current size and in terms of one data base containing all recorded titles. As of August, 1976, SOLINET had 150 members. These members have input into the OCLC data base approximately 2.7 million holding symbols. Based on the results of the Florida COMCAT project, the 2.7 million locations can be translated into approximately 1.4 million titles. Thus, to meet the needs of each member with its respective holdings, time and resource requirements must be properly allowed and allocated.

Time requirements for a centralized system without the proper design could become astronomical. For example, if SOLINET were to adopt a local-operations system and implement it as is, the possibility exists that only a limited number of members could be served. To illustrate, if it is assumed that only 100 members are served and each averages 30,000 titles in machine-readable form, the following time requirements may be projected for the quarterly production of microfilm catalogs.

- 2500 titles processed per hour (see elapsed-time requirements, page 42)
- 3,000,000 titles massaged (100 x 30,000)
- 1200 elapsed hours (3,000,000 ÷ 2500)
- 60 elapsed days (1200 ÷ 20 hours)
- 76 days per quarter (365-62-10) ÷ 4)
- 79% of each quarter consumed with microfilm production only (60 ÷ 76); no time for data base maintenance and other necessary activities is inclued in the 79%.

Each of the SOLINET microfilm production alternatives can be successfully argued in terms of cost. Cost, however, cannot be the only factor used in the evaluation. All of the alternatives vary in terms of standards, flexibilities, and controls.

No effective standards which specify widely accepted display formats, type of entries and content, reduction ratios, and other related characteristics for microfilm catalogs have been established. AMIGOS, the Southwest network, is attempting to compile and issue a set of standards and specifications to which all operations serving the AMIGOS participants must adhere. To meet the needs of the network, a comparable set of standards must be adopted by SOLINET.

If all or most of the generalized procedures presented in Section IV, COM Production Overview, are processed by commercial firms, SOLINET and its respective libraries will have limited flexibility regarding special features and enhancements. Vendors who are currently marketing microfilm cataloging services, are not anxious to modify their formats and procedures without additional financial considerations or long-term commitments.

Adequate SOLINET and library controls are a requisite for a satisfactory microfilm production operation. Controls must be provided which guarantee completeness and integrity of the data base, coordinate maintenance and production schedules, insure the quality and totality of the microfilm catalogs, promptly deliver a completed catalog to the respective library, and impose all standards with promptness and clarity. With local operations, these controls are embedded and are relatively easy to administer. When a commercial operation assumes all or part of the responsibility, it also assumes dominant control over its portion of responsibility. Relinquishing dominant control often proves to be as taxing as the complete absence of control.

Selection of the appropriate alternative cannot be made in isolation. Participants in the selection process must be aware of additional SOLINET technical developments schedules for the near future.

SOLINET near-term developments:

1. The acquisition of all SOLINET OCLC-MARC records plus the continuing subscription for the most current records;
2. The installation of communications equipment which will interface with member institutions and OCLC;
3. The installation of an information retrieval service, and
4. The development of procedures which will aid in the construction of a union data base.

Thus, the alternative selected must be effective, practical and complementary to the other scheduled developments.

## XII. CONCLUSION

Based on the information gathered for this report, COM catalogs for one library, when maintained in lieu of card catalogs, will not always provide direct cost savings for the library. COM catalogs will, however, allow the distribution of the catalog to locations which would otherwise be impractical to serve.

Resources required to support a local operation are often available. When they are available, coordination of key elements may prove to be nearly impossible. Library catalog priorities are usually considered only after all other local processing activities have been completed. Needless to say, all other processing activities are rarely completed to the extent that a large portion of the computer resources can be dedicated to the library for a sizable period of time. Due to these local constraints, and as an alternative to commercial operations, a cost-effective centralized system managed by SOLINET should prove effective.

Union COM products are practical tools for displaying titles jointly held by multiple libraires and for displaying related copy/volume information. Interest in these tools is being generated because libraires cannot expect to have continued free access to the OCLC on-line system for non-cataloging activities. OCLC is fast approaching the point where the implementation of a search charge for non-cataloging activities will be a necessity. With the implementation of such a charge, union COM products will become more attractive. The responsibility for the production of the resulting union products will rest with SOLINET.

The acceptance by SOLINET of the responsibilities and duties for the production of both local and union COM products provides an opportunity for the expansion of the total SOLINET cooperative program. Several alternative courses of action for the COM program have been presented. After considering each alternative, the Committee on COM will draft and recommend the conceptual plan for SOLINET's COM Catalog Program and its course of development.

SPEC NOTE: This appendix to the Annual Report of the Librarian at Johns Hopkins University (1976-77) was written to inform faculty and administration about closing of the catalog issues.

## APPENDIX I

# THE COMING REVOLUTION IN PROCESSING AND BIBLIOGRAPHIC CONTROL

by James Thompson

> Right in the midst of [The Library of Congress's] sudden expansion in various directions came the practical realization of the dreams of theorists of an earlier day in the establishment of the Card Distribution work of the Library of Congress. The unifying and clarifying of cataloging method...and the creation of a great central cataloging bureau at Washington mark the opening of the twentieth century in American Library history.*

Cataloging is one of the most technically difficult and consequently one of the most expensive of library operations. To reduce these costs the Library of Congress has for many years made available, for shared use, cataloging copy for the great majority of the books purchased by American academic libraries. The Library of Congress supplies printed card sets or cataloging data in machine-readable form; in either case the cost to the subscribing library is far below what it would be for professional original cataloging, and the result is more authoritative. The Eisenhower Library receives most of its L.C. cataloging through the Ohio College Library Center (O.C.L.C.), an automated cataloging service which processes L.C. cataloging records and provides for on-line editing by member libraries to suit local requirements (as in J.H.U.'s literature and Near

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* William Warner Bishop, "Cataloging as an Asset; an Address to the New York State Library School, May 1, 1915." Baltimore, Williams & Wilkins Co., 1916. Bishop in 1915 was Superintendent of the Reading Room at the Library of Congress.

Eastern collections). Almost all American libraries have come to depend upon L.C. for catalog data, for standardized cataloging rules used throughout the library community, and for establishment of subject headings considered authoritative for academic use. This standardization not only provides a consistent national approach to bibliographical control but also frees subscribing libraries from a labor-intensive activity which no large library could possibly support at today's labor costs.

The 75-year dependence of U.S. libraries on L.C. cataloging has had pervasive effects on library practice. While L.C. has not formally accepted designation as "The National Library," it functions as such, and smaller libraries have little alternative but to continue to follow L.C.'s practice. But even when Bishop spoke in 1915, L.C. and other research libraries were already overwhelmed by the problems of maintaining very large card catalogs. Bishop complained that "we have continued to use an instrument whose value for small collections is well established, and we have built it up until it fairly threatens to break down of its own size and weight." In fact, in the intervening years, the catalogs of large libraries have generally lost the consistency, accuracy, and timeliness upon which are predicated the codes governing their management. It is no longer possible, withouth very large increases in staff and funds, to maintain a card file of millions of cards, such as Eisenhower's, in an efficent and timely manner.

Another problem facing catalogers is recurrent changes in the cataloging code and in subject headings. Many of these changes are dictated by social and educational developments. An additional factor is the increasing international standization of library practice and of bibliographic description. This on-going cooperation, facilitating the international exchange of bibliographic information, requires many compromises which often result in changes in cataloging rules. Subject headings change constantly as new subjects appear and old ones grow more complex or take on new names. With each change in the code, and with every change in subject heading, alternations must be made in the catalog: cards must be pulled, headings erased and retyped, and cards refiled. Only thus can the consistency of the catalog be maintained, the consistency which is necessary for its reliable use and for assurance to users that all the relevant material available in the Library has been located through the catalog. This kind of catalog maintenance is so time-consuming that no large library is current in it and the resulting frustrations on the part of patrons are well-known to any scholar. L.C., the largest library, is the most pressed in this regard, and has remained functional only through the infusion of enormous federal funding.

When the current cataloging code (The Anglo-American Cataloging Rules) was published in 1967, L.C. was simply unable to comply fully with it, since this would have required altering all existing records which did not conform to the new (and much revised) rules. L.C. then adopted a policy of "superimposition", by which they continued use of already established author headings for new works by those authors. The Library recognized that as the output of works by these personal and corporate authors increased, the inconsistency of the catalog would grow, but there was then no economical alternative. This policy has worked severe hardships on other libraries. Those wishing to follow the Rules consistently could not use the cheaper L.C. cataloging copy without expensive manual alterations; those electing to accept L.C.-"superimposed" copy had to establish a growing, unwieldy, and expensive cross-reference structure with the additional disadvantages of inconvenience to the users.

With the accelerating pace of technological, social, and political change, the need for revising subject headings has increased. Yet whenever L.C. changes a subject heading, other libraries face, again, the alternatives of altering L.C. cards to fit local practice, of revising local cards, or of using multiple forms of entry, confusingly interfiled with cross references. These alternatives are expensive and reduce the quality of service, either by necessitating multiple entries to the catalog, or by delaying cataloging because of the labor required. When L.C. changed "Aeroplanes" to "Airplanes" recently -- a good example of how far behind L.C. is -- it created a huge burden for other libraries; with the change from "Negroes" to, according to circumstances, "Blacks" or "Afro-Americans," the results were similar. (Eisenhower has elected to file all three forms, rather than alter the 4,000 cards involved). Yet the quarterly revisions of L.C.'s subject headings contain hundreds of such changes. All but the smallest U.S. libraries have simply ignored most of these changes, and few research libraries can attempt to keep current with cross references.

The card catalog was already obsolete when Bishop complained of it in 1915, though research libraries have continued to struggle along with it for lack of a suitable alternative. "Dimly one can see possibilities of mechanical changes and alterations, of the use of photography... possibilities of compression or even total change of form." The "total change of form" which Bishop predicted has arrived with the advent of automated data processing, providing a completely new way of handling large and changing files, such as library catalogs. L.C. has taken the lead in utilizing these new methods and has firmly announced the closing of its card catalogs in 1980 and the development of an automated catalog to supplement that static catalog. There is every reason to believe that this development will occur on schedule. The effects will be enormous. L.C. will be able to "desuperimpose" by accepting the second edition of the Rules, to be published simultaneously. It will be able to alter massive subject headings quickly by computer. Its catalog for items processed after January 1, 1980, will be totally on-line. Cataloging will thus be done without reference to the closed card file with the immediate consequence of increasing inconsistencies in the catalogs of libraries which have long been using L.C. data. The differences will occur between pre-1980 entries and subjects, and those provided by L.C. after automation. L.C. may, under pressure from other libraries, continue to provide innumerable cross references between new and old forms; but incorporation of those entries into existing catalogs will be prohibitively expensive.

While awaiting its automated systems, L.C. is currently delaying changes in subject headings. Consequently a flood of changes in subjects and entries will occur in 1980 and there is little possibility that the Eisenhower Library will be able to keep current with these changes without unrealistic staff increases. One solution open to us, and likely the most economical one, will be to close our own catalog and automate our own processing. Many research libraries, including Northwestern, Stanford, the University of Chicago, the University of Pennsylvania, and the members of the Research Libraries Group (Harvard, Yale, Columbia, and the New York Public Library) have already initiated or are seriously considering such action.

There are several possible methods for automating our own processing. The complete conversion of our current catalog into machine-readable form, barring massive new funding, seems out of the question. The alternative of closing our own card catalog would allow us to create an automated second catalog containing all items cataloged after the closing, and this could be done at reasonable expense. We currently take most of our cataloging data from O.C.L.C., and enter our occasional original cataloging into the O.C.L.C. database for other libraries to use. O.C.L.C. can and already does provide us with magnetic tapes of all of our cataloging, and various service bureaus can use these tapes to provide book, microfilm, or microfiche catalogs. Just as L.C. will do its own cataloging without regard to its closed card file, we will be able to do the same with an automated second catalog, saving vast amounts of time and labor now used for cross-checking and verifying entries and subjects. A service bureau could then duplicate by machine L.C. changes in subject and other entries cheaply and without delay.

The apparent disadvantage of having to consult two separate catalogs may well be an advantage to many of our users. In most cases patrons will know the approximate date of the book needed, and will usually find it on the first try. Patrons searching for particular subjects will have to look in two places only if doing comprehensive searches. In these cases the time spent shifting locations will be negligible; patrons not searching comprehensively will often benefit from having the most recent acquisitions separated from older works.

The automation of acquisitions and processing is already being stimulated by the clear trend in the book trade toward automated transmission of order and financial records, by the decreasing cost of computer storage, and by continuing advances in mini-computerization. At the same time, the sharing of bibliographic information (as through O.C.L.C.) is expanding rapidly; libraries and bibliographic data-bases are interconnecting into a nationwide complex of networks and subnetworks and the Eisenhower Library is currently involved in both state and regional network planning and expects to be very much involved in this complex.

Some of these evolving networks, including O.C.L.C., are attempting to develop a complete library processing package, using their vast data-bases as the source of bibliographic citations, and then using subroutines to generate purchase orders, check-in receipts, monitor funds, and perform all the other processing functions, including cataloging and serial record control. With the size of these data-bases expanding rapidly, however, there is a disadvantage to having one library's relatively small in-process file intermixed with such a large data file. On the other hand, the development internally of a completely automated library system, such as those at Chicago and Stanford, has proved to be a dubious choice in the institutions where it has been attempted; few libraries are initiating such ventures, and few are replicating the ones now in use.

A more likely alternative is the use of in-house mini-computers which can handle local, smaller files, while linked to large network data-bases as sources of bibliographical information. The most promising variation lies in the rapid development of regional sub-networks, such as the networks affiliated with OCLC (Eisenhower is a member of PALINET, the Pennsylvania Area Library Network). A smaller subnetwork could use the shared financial resources of a number of institutions to provide the automated processing capabilites, while maintaining a processing data-base small enough to be used quickly and effectively. The subnetwork would in turn rely on the larger network for most of its bibliographical data.

Such a system would entail certain start-up expenses for the member libraries, but this must be weighed against the cost of manual processing after L.C. automates. Possibilites for substantial operating savings are real and will be accompanied by new services not now available. Access to other library holdings will be greatly facilitated through location designations. Patrons will have access, probably on-line or through COM catalogs, to citations for books on order and in process. The whole range of computerized information services, such as those providing on-line literature searches, may be available through public-access terminals. Browsing possibilities via CRT terminals will be greatly facilitated and patrons searching by subject will be able to combine subject interests in the way now possible through commercial data bases.

To sum up, a variety of substantial changes of practice and policy in institutions upon which a research library depends -- L.C., the book trade, and the communications and computer industries --

indicate clearly the necessity for increased automation of Eisenhower's technical services. To this end the department heads and other staff members of the Technical Services Division are engaged in a systematic program of training in relevant disciplines and in the study of alternatives available to us. The actual configuration of an automated system must await important decisions involving networking and technological design; in any case, the Library must be ready to act at the appropriate time.

Univ. of California/Berkeley
August 1976

# FUTURE OF THE GENERAL LIBRARY CATALOGS OF THE UNIVERSITY OF CALIFORNIA AT BERKELEY

Report - Phase 3 on the Future of the Catalogs
by the
Committee on Bibliographic Control
General Library
University of California, Berkeley
6 August 1976

Prepared by a Study Group of the Committee:

Patrick J. Russell, Jr., Chair
Richard Cooper
Neal Kaske
LeRoy Ortopan
Joseph Rosenthal
Mercedes Untawale

## Space

The space needed for on-line terminals, storage, and access is expected to be less than that required for a card catalog having a comparable number of entries. A catalog relying on computer output microform as the major means of public access to the data base, and costing somewhat less than the present proposal was considered by the authors of this report. However, this form of display was rejected because of substantial increases in the space requirements, particularly in branches, which would result from the large number of microform readers required to contain a constantly expanding data base. In any case, in Doe Library space will be needed for an appropriate number of terminals. Due to the aforementioned changes in catalog use patterns, there may be less concentration of users in Doe Library, and a resultant need for more terminals in other locations. Space for such terminals need not necessarily be limited to branches, where space is often at a premium, and other suitable space (e.g., near or at a science laboratory) ought to be given serious consideration. Moreover, after the system is operational experience with a complete data base accessible at multiple locations will no doubt suggest points suitable for relocation of some terminals. Provision should also be made for some terminals with printers to assist in alleviating queuing problems. These would be particularly useful for subject or other extensive bibliographic searches.

## Users

Meeting the requirements of the user, whether student, faculty, researcher, library staff, or general public, is the most important factor in the choice of catalog format. The new machine-readable catalog will have several advantages for users.

a. The catalog will be current and provide immediate access to records, for in process as well as fully cataloged items. These records are now dispersed among many fields at various locations.

b. The catalog will be more flexible, with the possibility of providing many more points of access than at present in the card catalogs.

c. The entire catalog will be available at many locations.

d. Library staff will be able to update and correct records more quickly and efficiently. This will be particularly important in view of anticipated wide-spread changes in name entries (desuperimposition) and topical subject headings.

e. Arrangement and display of records should become more consistent than that provided by the present system of card files, which are subject to filing inaccuracies and loss of data.

f. Library users will have most of the records available to them in a familiar form (the card catalogs) while they become accustomed to the on-line approach.

g. There will be no intermediate step between card catalogs and on-line requiring patrons and staff to learn a third method of approach to data during an interim period.

However, in the scheme of bibliographical products envisioned in this report, a number of potential problems and difficulties can be identified, and there may be others which will arise unexpectedly. For example, although on-line access will be familiar to some, it will be new to many patrons and staff; considerable adjustment and training will be required to assist them in learning how to use the new data base until they are at ease with the system and are able to conduct their own searches. Another difficulty, during the transition period, will be the necessity of querying two or more files, with variations in form of bibliographic entries and filing practices between them. Moreover, since certain kinds of data will be pulled from the old catalog in the process of maintenance and added to the new, while imprints published prior to 1979 but cataloged after that date will appear only in the new, it will become increasingly difficult to precisely define the "scope" of the old card catalogs prior to the completion of conversion. "Down time" is another potential problem. The on-line data base is vulnerable to loss of electricity, failure in telephone communications, or mechanical failures. While the actual amount of time may not be great, and an Annual Microfiche Catalog can be consulted, such "down time" will have immediate and deleterious effects on public service.

An increase in public service staff will be necessary to aid staff and patrons in the use of the terminals. Some of this staffing and assistance might come from technical services departments where staff has been trained and experienced in working with an on-line system. Systematic training of present staff, especially those staff members who will be most directly involved in assisting users with the terminals (Catalog Information Desk, reference personnel, etc.) should take place before the on-line system is launched. In addition to person-to-person assistance and instruction, adequate signs and leaflets, as well as audio-visual facilities (e.g., self-instructing programs incorporated in the on-line system) giving instruction on use of equipment and bibliographic and filing information will be of continuing importance. Public relations programs, with adequate budgetary increments, should be given a high priority.

~~Other Bibliographical Data Bases~~

~~The General Library will continue to participate in any University of California system-wide data bases or union lists such as the UC Union List of Serials. Through participation in BALLOTS or a comparable system, the General Library will have continuing access to the MARC base(s). In the context of such participation it is assumed that the Berkeley file will be identifiable and separable even though logically accessible to other users of the system. Bibliographic products representing items held at Berkeley, such as the Annual Microfiche Catalog, should be made available on a cost recovery basis to other libraries~~

(Taken from Annual Report 1976-77 of the Coordinator of Library Instruction - UTL)

University of Toronto

## Part I: Introducing the Microcatalogues

### Components of Microcatalogue Instruction

Most of July and August 1976 was taken up with planning how to instruct readers in the use of the new microcatalogues. In weekly meetings, a sub-group of the Implimentation Team for Orientation and Training, made-up primarily of the members of the Instruction in Library Use Committee, worked out a multi-faceted programme consisting of the following:

CAROLYN MURRAY
CO-ORDINATOR OF LIBRARY INSTRUCTION
UNIVERSITY OF TORONTO LIBRARY
ROBARTS LIBRARY, ROOM 4056
130 ST. GEORGE STREET
TORONTO, M5S 1A5

a) a introductory brochure outlining the basic characteristics of the microcatalogue

b) an attractive standing poster from which these brochures could be taken

c) a flip-chart to explain how microcatalogue entries are to be interpreted including a Key to location codes; its design allowed it to stand beside each microcatalogue film and fiche reader

d) a brochure Campus Libraries and the Microcatalogues, to link the microcatalogue location codes to the appropriate campus libraries (along with their addresses and phone numbers.) Also included is a list of those libraries not reporting into the microcatalogue and a campus map.

e) brief operating instructions for the film and fiche readers

f) a slide-tape presentation for self-operated motiva units in the catalogue area of the three main buildings to depict three main points: (1) the relationship between the card catalogue and the microcatalogue; as well as the relationship between the film and fiche copies (2) the existence of many catalogue records outside the scope of the microcatalogue (3) operating instructions for the film and fiche readers

g) a listening station - a taped explanation of how to find entries in the microcatalogue was placed in a self-operated tape-recorders attached to eight specially outfitted carrels placed in the main catalogue areas as well as on each stack floor of Robarts. The microcatalogue flip charts were used for visual re-enforcement of the explanation.

h) two microcatalogue worksheets along with answers sheets were developed as a type of programmed learning exercise to be used with or without an instructor present.

i) a seven minute video-tape illustrating the the role of the computer in the library to be played on our video equipment which would be housed in a unit designed to allow self-operation.

The implimentation of the specifics of each mode of instruction was left to me in my role as Coordinator of Library Instruction. Individual members of the group accepted responsibility for specific preliminary tasks, such as drafting media scripts or outlining the content of the printed materials. I worked with the graphic artists and printers involved in executing the final drafts and designs.

The first three items on the list were ready by October, considerably ahead of the arrival of the full set of film readers. The listening stations were in operation by December. The final production of the slide tape show was delayed until late spring 1977, but a working set of about 20 slides were used in most library instruction sessions given throughout the year. The final production of the video-tape will be delayed until November, 1977.

## The impact of microcatalogue instruction

User reaction to the different kinds of microcatalogue instruction was partially determined by the Microcatalogue Evaluation Questionnaire Tabulation (January, 1977):

| - QUESTION | UNDERGRAD | | GRAD | | FACULTY | | LIB STAFF | | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|
| 11. a) How did you learn about the microcatalogues & how to use them? | | % of 240 | | % of 105 | | % of 20 | | % of 167 | | % of 22 |
| i. brochure | 55 | 22.92 | 36 | 34.29 | 11 | 55. | 36 | 21.56 | 4 | 18.18 |
| ii. folder | 18 | 7.5 | 10 | 9.52 | 4 | 20. | 10 | 5.99 | 2 | 9.09 |
| iii. flip chart | 85 | 35.42 | 31 | 29.52 | 10 | 50. | 16 | 9.58 | 4 | 18.18 |
| iv. survival sess. | 16 | 6.67 | 20 | 19.05 | 2 | 10 | 6 | 3.59 | 1 | 4.55 |
| v. seminar | 17 | 7.08 | 6 | 5.71 | 3 | 15. | 2 | 1.2 | 0 | ---- |
| vi. listening | 12 | 5.0 | 7 | 6.67 | 1 | 5 | 4 | 2.4 | 0 | ---- |
| vii. staff | 60 | 25.0 | 24 | 22.86 | 7 | 35 | 35 | 20.96 | 8 | 36.36 |
| viii. other users | 54 | 22.5 | 14 | 13.33 | 5 | 25. | 7 | 4.19 | 2 | 9.09 |
| ix. Sigs briefing | 2 | 0.83 | 1 | 0.95 | 0 | -- | 6 | 3.59 | 1 | 4.55 |
| x. Staff training | 1 | 0.42 | 7 | 6.67 | 0 | -- | 140 | 83.83 | 0 | ---- |
| xi. self taught | 51 | 21.25 | 26 | 24.76 | 1 | 5. | 15 | 8.98 | 8 | 36.36 |

It seems clear from this rather small sample that self instruction and peer instruction were as popular as staff instruction (that is one-to-one across the desk). Noteworthy as well is the significant numbers who utilized the brochures and the flip-charts. Participants in this survey were able to check more than one mode of instruction if they used more than one. These results have been corroborated by the perceptions of the librarians working across the desk. They have found that users have been taking advantage of the variety of instruction methods offered and have, in the majority of cases, either managed to use the microcatalogues with little or no assistance or they have approached librarians with more informed questions than had been the case with the card catalogues.

## Microcatalogue Instruction - voluntary

Considering that approximately 1000 students (both graduates and undergraduates voluntarily attended the Survival Sessions offerd in September and October, 1976 and another 200 attended Microcatalogue Briefing Sessions given in the Sigmund Samuel Library, we can conclude that the library met a clearly felt need on the part of our users. About one third of the hour's instruction given in the Survival Session was devoted to an explanation of the Microcatalogue. A set of slides was used to highlight its main aspects. A sheet with reproductions of four microcatalogue entries were distributed so the participants could note the difference between the author, title and subject indexes and the Full Bibliographic Record. The operation of the film and fiche readers were demonstrated on the two machines in the seminar room. A question and answer period was provided so participants could indicate to the instructor what they had not quite understood. In contrast to the passivity of the Survival Session the Microcatalogue Briefing Session was a "hands-on" exercise in operating the machines and finding entries as directed by prepared worksheets.

## Microcatalogue Instruction - course-related

It must be noted that the approach taken in the Survival Sessions was duplicated in course-related instruction where time was allowed for the introduction of the microcatalogue as well as for the introduction of reference works in the given subject field.

# CARD CATALOGUE TO ON-LINE CATALOGUE -- THE TRANSITIONAL PROCESS

by

Carole Weiss
Head, Reference Department
University of Toronto Library

June, 1977

## CARD CATALOGUE TO ON-LINE CATALOGUE -- THE TRANSITIONAL PROCESS

### I. Preparation for closing

Plans to use the computer to improve access to the diverse and decentralized libraries at the University of Toronto began at least 15 years ago. Our collections, totalling over 4,000,000 items, are housed in about 50 libraries which seem to be constantly shifting as University needs change. In 1965 we began conversion of catalogue records to machine form; by 1967 we adopted the first LC/MARC format for these records. Our new research library for humanities and social sciences was designed with facilities for computer terminals which would provide an eventual on-line catalogue.

Despite this long history and seemingly clear objective, it came as a profound shock to library staff when the decision was made in July 1975 to close the card catalogue in one year's time. The reasons for this decision are ones with which you are no doubt familiar from discussions in your own library. The card catalogue did not provide the capabilities offered by the computer:

to update and change subject headings and location information

to decentralize access to a union catalogue

to produce one integrated file of various bibliographic records through machine translation programmes

to apply Boolean logic in searching records.

By 1975 the cost of maintaining even one card catalogue - in a system such as ours - had resulted in huge backlogs particularly in updating of location information for collections which have been transferred or closed. The timing of the decision to close the card catalogue was partly determined by a substantial reduction in the library budget and our resulting inability to continue a manually filed card catalogue while developing a new computer based system.

Reader Services staff had not been involved in planning for automated catalogue systems and to us, the frequently postponed predictions of library automation staff had seemed unreal. However, when it became clear that the primary tool for access to the collection was about to be drastically changed, reader services staff finally woke up and decided it was time to have some influence over the outcome of that change.

I should note at this point, that a key factor in our library climate at that time was our recent involvement in the Association for Research Libraries' Management Review and Analysis Program. This self study had involved a large number of staff from all parts of the library and had greatly improved communication between areas. It had also provided us with the skills and knowledge needed to contribute useful input to the decision-making process.

Reader Services staff decided that what was needed was a position paper that would generate discussion and increase awareness of the library users' requirements. Reference staff immediately did a literature search. We found several studies which stimulated our thinking: the Bath University study suggested some possibilities on user preferences for catalogue formats, New York Public Library's experience provided background on the question of freezing versus closing of the card catalogue, and particularly useful was Richard Palmer's study, a survey of user requirements conducted at the University of Michigan. No model existed, however, which provided definitive answers to our problems in a large decentralized academic library. We therefore initiated two simple surveys.

In the first, we analyzed in-person and telephone requests at our Catalogue Information Desk to determine what information users expected to find in the catalogue and which access points they most frequently used. In person over 60% wanted a specific work, 29% asked by author and 33% by title. About 30% wanted material on a given topic. Nearly all telephone callers were looking for specific items, 42% requested by author, 53%, by title.

User's perceptions of their own needs were somewhat different. In answer to a questionnaire distributed at our three main libraries, 77% of the users were looking for a specific item; 85% said they would look first under the author's name. Few thought they looked for material under title. Their most frequent complaints about the card catalogue were the two classification systems, old and new (LC); difficulties caused by filing rules; and inadequate subject headings. When asked about preferences for an alternative to card catalogues, 37% said they would prefer computer terminal access, 30% a book-form catalogue, 26% wanted to keep the card system, and only 6% wanted a microform catalogue. A large number of users expressed dissatisfaction with the possibility of a microform alternative, because of problems with handling and eyestrain. Their negative reactions seemed generally based on past experiences in trying to consult newspapers on microfilm.

With this much information a group called the "Reader Services Task Force on the Design of Services in a Machine-Readable Environment" drafted a list of guidelines which was intended to state general goals for the provision of services when the card catalogues were closed. It was noted that our card catalogue system, which attempted to give a fairly high standard of bibliographic information to all users, failed to provide the majority with the speed of access they desired, and also failed to provide many of the access points and descriptive information the more specialized users sought. To cope with increasing demand and diminishing resources it was considered essential that we create a system in which the majority of users could find what they wanted independently.

Reader Services proposed (1) a simplified on-line finding list giving location and availability information which would satisfy the 60-80% of users looking for known items; (2) an improved subject retrieval system making use of on-line search capabilities; (3) full bibliographic records made available, on a more limited basis, not necessarily on-line.

Near the end of this intensive planning period, some of our most valuable information was gathered through experimentation with a public on-line shelflist. The Call Number Query System was an interactive computer programme which provided call number access to the Library's database in a compressed format. The user could display a particular record, browse forwards or backwards through the shelflist, and if desired, print out bibliographies of selected records.

Computer terminals placed in five sites in the Library were closely monitored for type and frequency of use. In the two sites where terminals were placed in locations freely accessible to the public, use was extraordinarily high. The terminal in our main catalogue room had constant line-ups. After the first week we had to insert a message asking users to give those waiting in line a chance. We were surprised to find that users asked for very little instruction in the system, and were extremely inventive in finding what they wanted using the limited call number access. Although some assumed that this system was the rumoured replacement for the card catalogue and expressed dismay at having no author or title access, most complaints stemmed from overly high expectations of "The Computer". Some users would type in very specific topics, for example: "I have to write about the influence of

Dante on three nineteenth century writers" and hope that a nearly finished essay would be printed out. One unexpected but logical result was that most of these specific requests could be answered by our traditional reference services or by other computer databases offered through the Dialog or Orbit systems. Use of these commercial database services mushroomed during the three month period.

The conclusion of this experiment was that user reaction was in fact too positive. It became apparent that to add on-line access by author, title and subject, we would need much more terminal access than our system could then provide. The added speed and convenience of the system increased the demand for the service far beyond our original estimates, which had been based on use of the card catalogue.

Various planning groups worked intensively from January to June 1976 in an effort to overcome problems without compromising our objective: a replacement for the card catalogue that would improve services for the user and stay within budgetary limitations. In addition to the management team ultimately responsible for decisions, the key groups which accomplished this task were two implementation teams: one charged with working out all details related to data base integration and application; the other, with coordinating orientation and training. Both teams were made up mainly of non-administrative staff from all areas of the library. Their attention to detail, and their sense of responsibility in keeping other staff in touch with new developments and consequent alterations in plans were absolutely crucial in creating staff confidence in the new system. The orientation team distributed frequent newsletters. They also held general and small group sessions to train all staff in the new system and to allay fears about the impact of technology on library jobs. Reader Services staff conducted a comprehensive user instruction programme employing various media, the most successful of which were flip charts, brochures and seminar sessions.

## II. What we have now

Our card catalogues were closed as scheduled on July 1, 1976. The main union card catalogue is not completely frozen. New serial holdings and non-Romanized entries are added. When corrections are made, cards are pulled and the corrected version appears only in the machine records. Since records for some material, mainly in affiliated libraries, are not yet in the database, we expect to retain the card catalogue for some time.

What replaces the card catalogue? The least preferable alternative, according to our prior user survey, a microform catalogue. Fortunately for everyone, the users love it.

The microcatalogue now includes about 1,300,000 records with nearly 6,000,000 access points. Old class and Library of Congress classification systems are interfiled. We have begun adding our government documents, and audiovisual material; which are classified in separate schemes. The whole catalogue is cumulated annually, with monthly cumulative supplements.

Our microcatalogue is arranged in four separate sequences, by shelf list order, by author, by title and by subject. The full bibliographic record, i.e. the usual information found on Library of Congress cards, appears only in the Shelf-list section. The other listings are brief form indexes giving author, title, edition statement, date of publication, call number, holdings, and location of the item. This division of indexes was perhaps our most hotly debated issue. The controversy among librarians appeared to be largely an emotional one, some maintaining that a dictionary filing arrangement would result in total mayhem and others asserting that a classified catalogue was the only logical choice. The breakdown seemed to be along lines of national origin and library school training rather than the result of concrete evidence. In the end the Chief Librarian cast the deciding vote and made the choice. The separation of author and title has proved a distinct improvement for users who did not know what to look under when confronted by our author/title card catalogue. No one seems confused by the change in the split.

Other significant improvements are the inclusion of all titles including general ones such as Handbook of psychology and all series, for example, Penguin books. These have proved extremely useful in reference work. Filing is strictly alphabetic as in a telephone directory: umlauts are ignored, Mac and Mc file separately, and punctuation is ignored in the subject arrangement. Most important, it is no longer necessary for a library user to learn what we mean by main entry to find the complete information about a work. The amount of frustration this saves is impossible to calculate. We have kept the main entry concept for the internal purposes of construction of the database. For those who want to know, the main entry is in capitals. The user, however, can find his book without learning cataloguing rules.

The microcatalogue is produced on both microfilm and microfiche. At present we have 67 permanently loaded motorized microfilm readers in high use locations and 75 fiche readers scattered throughout the library stacks and around campus.

What has happened to on-line access for the public? We have new plans which will come into operation this fall when we begin to implement a Circulation and Inquiry System operated on a mini-computer. Although I hesitate to predict at this point, it appears that the development of mini-computers will bring costs to a level at which extensive on-line public access is feasible. Meanwhile to everyone's surprise, our computer print-out bibliographies have been superseded by the relative ease and low cost of microfilm print-outs. The now antiquated Call Number Query System is used only in the production of overdue notices. Our cataloguing system operates on-line, but is not used directly by the public. Reference staff use it on a limited basis for verification and interlibrary loan purposes.

We also have some computer produced book-form catalogues for smaller collections such as the Government Publications collection. Even these locations, find the amount of paper and the cost of updating serious disavantages and now prefer the main microcatalogue.

## III. How it has worked out from a Reference point of view

In general, library users are enthusiastic about the microcatalogue. Staff fears of having to face increasing numbers of hostile and dissatisfied users never materialized. From the first day students appeared to prefer looking for material on a screen to looking in drawers of cards. It amazed us to find people choosing to wait for a microfilm reader rather than use the card catalogue in the same room.

It is possible that after years of being accustomed to the television screens, younger users actually feel more comfortable with the similar microcatalogue screen than they do with paper catalogues. Most users needed little or no instruction, and in retrospect, I think that our comprehensive orientation programme satisfied our own staff needs more than the users'. Very few users ever understood the intricacies of our card catalogue and seemed virtually unaware of what we regarded as revolutionary changes in the catalogue structure.

Our evaluation of the first year's operation of the new system included collection of use statistics as well as another questionnaire. Again, in the main catalogue areas title access tended to be used slightly more than author. Use of the shelflist with full bibliographic information represented less than 10% of the total use. In answer to the questionnaire, users continued to say they mainly consulted the author section, however. With the exception of library staff more than half said they never consulted the full bibliographic record. Those who did, used it mainly for its classified subject approach rather than to find bibliographic details about a work. (Orientation staff are now planning better publicity to explain the potential uses of the shelflist approach.) A majority of undergraduate and graduate students found the microfiche catalogues easy to use. Most faculty, however, ranked it only fairly easy. The motorized microfilm catalogues were considered easy to use by all groups. Nearly 90% found the present division of catalogues into author, title, subject, and shelflist sections satisfactory.

The most frequent user complaint was that there were not enough machines. Some people, particularly those with poor eyesight found the microcatalogues hard on the eyes. Problems cited included glare, entries too crowded, print too small, dirty screens, poor lighting, and difficulty of keeping one's place when copying information.

Numbers of favourable comments such as "excellent innovation", "vast improvement", "very convenient tool" outweighed the unfavourable "I don't trust them", "I inherently dislike machines". One graduate student wrote "For years I pined away for a catalogue of some sort that would be on hand in the stacks near to where I do most of my work. The microcatalogues you have installed save me a great deal of time, and I'm grateful."

Library staff, although pleased with the user reactions, are more aware of problems with the system. Until all material is included in the database, there are more places to search. For staff, who know all the possibilities, this means more checking to be certain that we do not have an item. The removal of cards from our closed catalogue when records are corrected or copies added has created more difficulties than were foreseen. Our thinking in making this decision had been that anyone using the card catalogue would find only correct information. For example, users would not be sent to wrong locations because of failure to check the microcatalogue. However, when new editions or copies of works are added, the cards are withdrawn, resulting in surprising gaps in the card catalogue listings for the most widely read authors. I am not sure that there is any good answer to questions of how to close the card catalogue, but we probably would have been better off not to have withdrawn cards so extensively.

Until we have an automated authority system, probably two years away, we lack cross-references in the microcatalogue. While users undoubtedly miss finding some material, the problem is partially offset by the additional entries provided, particularly for corporate bodies and journal titles.

Obtaining good quality film reproduction of the length required for our film readers was unexpected problem at first. On the other hand loss or theft of microfiche was not a problem at all as some people feared; nor has breakdown of the machines been a burden.

In the next cumulation of the complete catalogue we hope to correct most of the record errors found in the first edition and to improve legibility.

Probably the most difficult part of the transitional process is a general human impatience with imperfections, especially on the part of professional staff who feel a responsibility for providing good quality service. We have made great efforts to clear up minor problems and to agree on priorities for attacking major ones. But the librarian who is blocked in a search by an error or omission, normally reacts first with feelings of annoyance and frustration rather than calmly thinking, oh yes, this problem is priority number 17 and will be solved in 1979. Staff must clearly devote an unusual amount of energy to problem follow-up during the change process.

Another general problem is the difficulty of predicting all the ramifications of a change. This discovery of unexpected uses is at the same time, the most exciting and rewarding part of the effort. For example, use of our old classification material more than tripled when the microcatalogue was introduced. Reference staff in exploring the cataloguing databases discovered the economical use of different search keys such as ISBN for verifying recent publications. Based on experiences with search systems for databases available from commercial sources, reference staff have also been able to provide proposals for improved subject access to our own collection. Technical services staff, in their eagerness to add as much as possible to our database found new ways of handling records. This effort, while extremely beneficial from many points of view, unfortunately resulted in an unexpected growth of the catalogue supplement and consequent budgetary problems.

Further complications are introduced by constant change in technology. The development of the mini-computer has greatly altered the focus of our planning within the last year. Present user preference for our microfilm catalogue seems largely based on our selection of a particular machine. If inexpensive portable fiche readers were made available, reader demand might change completely. I know that one smaller library which has converted to a microform catalogue, can afford to cumulate completely every month and change the arrangement as often, thus making the fiche catalogue quite a different tool from ours. The potential for flexibility is so great and so tempting that there is a danger of going off in too many directions. Especially in a large library, a tremendous effort must be made to keep communications going so that changes do not have unwanted effects.

From our experiences so far, I can only conclude that what we are involved in is much more complex than a transitional process from A to B, Card Catalogue to On-line catalogue. With so many variables, I do not think that anyone can predict quite where the process will lead. Perhaps our biggest mistake was in not introducing small experimental changes in our system to users sooner, so that we would not now be facing so many unknowns. The present technology offers exciting potential for librarians to improve access to information. Reference librarians, with daily experience in using a multitude of indexes requiring different search strategies, have a unique knowledge of the vast range of possibilities and the likely impact on users. We are in a strong position to influence the future systems of bibliographic access if we only take advantage of the present opportunity.

New York Public Library
April 1978

## QUESTIONNAIRE ON USE OF RETROSPECTIVE BOOK CATALOGS AND THE AUTOMATED BOOK CATALOG

### PART I: Retrospective Book Catalogs of The Research Libraries (G.K. Hall Catalogs)

### Display of the Catalog

1.0 Is the retrospective book catalog of your division displayed for public use? Yes______ No________

2.0 What difficulties have you encountered in displaying the retrospective book catalog?

3.0 Has special shelving or furniture been provided for the display of the catalog? Yes______ No__________

3.1 If not, do you have plans to request such shelving or furniture in the near future? Yes______ No________

3.2 If space for display of the book catalog is a problem, will the eventual retirement of your card catalog solve this problem? Yes_______ No_________

4.0 Have signs been posted about the use of the book catalog and its relation to the automated book catalog? Yes_______ No________

4.1 Would printed instructions briefly describing the similarities and differences of the two book catalogs help librarians and public users of the two catalogs? Yes_______ No________

### Superseded Card Catalogs

5.0 With the freezing of the card catalogs in 1972, it has no longer been possible to provide card catalog maintenance. This means that cards may neither be added to nor extracted from card catalogs, nor can there be catalog card corrections or updating of bibliographic data.

The procedure for recording materials withdrawn or missing from the collections and the reclassifying of materials has been implemented by the annotation of shelflist cards. If materials have been reclassified, the old shelflist card is annotated with the new call number and a shelflist card is also made for the new call number. Recataloging is usually done only if there is a bibliographic reason for doing so. (The annotation "Recat. in..." indicates that the material is also listed in the Automated Book Catalog with the new call number.) If material is to be given a new location, or if format has changed from hard-copy to microform, it is "relocated". (The annotation "relocated to..." indicates that the material is not listed in the Automated Book Catalog.) A main entry card annotated with both old and new call numbers or with withdrawn or missing notes, is made for the Control File, an alphabetical file maintained on Stack VI.

5.1 List, in order of importance, those problems which you have encountered with respect to the above procedures:

5.2 There are now approximately 15,000 main entry cards in the Control File. Would this file be of more value and use if copies were published periodically for more locations within the Library? Yes______No______

5.3 Would you recommend that all "relocated" items be considered for recataloging in the automated book catalog? Yes______No______

5.4 Other recommendations:

6.0 What do you consider to be a fair period of time for the testing of book catalogs, with the view to the retirement of the card catalog:

6 months________

1 year__________

2 year__________

Other__________

6.1 Have you considered locating your card catalog in an area adjacent to your division, but away from a public area? Yes______No_______

6.2 If the above suggestion is impractical, have you considered sealing or taping your card catalog, instructing the public to use the book catalogs only? Yes________No__________

7.0 If you have already retired your card catalog, have you had problems serving the public? Yes________No_________

7.1 If yes, what is the nature of these problems?

8.0 There has been no card catalog maintenance provided since January 1972, and there is no prospect that catalog card maintenance can be provided at any time in the future.

8.1 After a period of retirement of the card catalog from the public area, do you have plans for the eventual discard of the retrospective card catalog? Yes______No_________

8.2 What problems, if any, do you anticipate if you were to discard your card catalog?

8.3 Will the eventual publication of the main Public Catalog obviate most of these problems? Yes______No________

(When Project RETRO reaches publication stage, it is anticipated that copies of the catalog will be located in several areas of the Library, especially the larger divisions.)

## Use of the Retrospective (G.K.Hall) Book Catalogs

9.0 What is the chief recurring problem in the use of the retrospective book catalogs?

9.1 Using a scale of 1 to 5 (1 = no problem; 5 = greatest problem) please rate each of the following problems:

9.1.1 Missing call number * ____________________

9.1.2 Missing access element ** ____________________

9.1.3 Faded or illegible data ____________________

9.1.4 Filing errors ____________________

9.1.5 Lack of page headers ____________________

9.1.6 Other (please describe below) ____________________

9.2 Have you made spot checks of entries from the book catalog against the card catalog, or the reverse? Yes_______No_______

9.2.1 If you have made spot checks, what is the most frequently recurring problem?

---

* A missing call number may be an incomplete classmark, one that is faded or illegible, or one that is partially or wholly broken off from the catalog card.

** An access element may be described as the initial data appearing on the catalog card, either as a main entry, or secondary entries transferred to the top of the card, above the main entry. The access element is the key to the filing order.

9.3 If data, especially call numbers, are missing from an access element have you been able to supply the missing data from other access elements? Yes______ No_________

9.4 Do you receive requests to photo-copy pages of the retrospective book catalogs? Yes______ No_________

If yes, indicate frequency:

Frequently________

Occasionally_______

Rarely ____________

9.5 Have you noted any mutilation of the retrospective book catalogs? Yes_______ No________

If yes, indicate frequency:

Frequently_________

Occasionally_______

Rarely_____________

## Format and Size of the Retrospective Book Catalogs

10.0 The 21-card page format has been used for all NYPL-G.K.Hall catalogs.

10.1 Do you find that the ability to scan several cards on a page to be an advantage over the card catalog? Yes_______ No________

10.2 What disadvantages, if any, do you find in the use of 21-card page format?

11.0 Do you have objections to the size of the retrospective book catalogs? Yes________ No_______

11.1 If yes, indicate whether objections are on

page size__________

weight size________

both of above______

11.2 What size, i.e.,number of pages, do you consider to be the optimum:

500 pages__________

550 pages__________

Con't 11.2

600 pages__________

650 pages__________

more than650 pages__________

11.3 Are bindings adequate for heavy use?

11.3.1 If not, what is the most frequently recurring problem?

Loose spine or back-strip __________

Loose casing __________

Other (please describe below) __________

12.0 Comment briefly, or in detail if necessary, what additional problems you have had with retrospective book catalogs that have not been covered in this questionnaire (use additional sheets, if necessary)

AJ Hogden 4/20/78

## QUESTIONNAIRE ON USE OF RETROSPECTIVE BOOK CATALOG AND THE AUTOMATED BOOK CATALOG

### PART II: Dictionary Catalog of The Research Libraries Reader Use of the Automated Book Catalog

13.0 Is there a discernible pattern to reader use of the card catalog, retrospective book catalogs, and the automated book catalog?

13.1 Indicate, if possible, the order (use 1st and 2nd) in which catalogs are used by readers:

Card Catalog________

* Retrospective Book Catalog________

Automated Book Catalog________

* To be checked only if your card catalog has been retired.

13.2 Does the reader understand the scope of and relationship of the card catalog to the automated book catalog? Yes______ No________

13.3 Does the reader consult the front matter of the automated book catalog and the brief instructions for its use? Yes______ No________

Don't Know__________

13.3.1 Do you have occasion to refer readers to the front matter? Yes______ No________

13.3.2 Should the instructions on the use of the catalog be more detailed in the front matter? Yes______ No________

13.3.3 Would it be helpful if separately printed instructions, probably not to exceed one page, be available in all book catalog locations? Yes______ No________

13.4 How many sets of the automated book catalog are on public display in your division? ___________Sets

13.4.1 Do you ever have a queuing problem in the use of the ABC ? Yes______No________

13.5 How many sets of the retrospective book catalog are on public display in your division? __________Sets

13.5.1 Do you ever have a queuing problem in the use of the retrospective book catalog? Yes______No________

13.5.2 How many sets of the retrospective book catalog are you keeping in reserve? __________Sets

13.6 Do you have sets of the Branch Libraries Catalog on Display in your division? Yes______No________

13.6.1 If yes, do you have occasion to refer readers to the BL catalog? Yes______No________

13.6.2 If answer to 13.6 is no, would you find a set of the BL to be helpful, especially in making Mid-Manhattan and other BL referrals? Yes______No________

13.7 How often do readers (including mail inquiries) request permission to photo-copy pages from the automated book catalog?

Frequently_________
Occasionally_______
Never______________

13.8 How often do readers request parts of the catalog, e.g., all entries beginning with CANADA, or all titles in Hebrew characters, etc.?

Frequently_________
Occasionally_______
Never______________

13.9 Have you noted any mutilation of the Automated book catalog? Yes______ No_______

13.9.1 If yes, indicate frequency of mutilation: Frequently_________

Occasionally_______

Rarely____________

## Reader Problems With Use Of The Automated Book Catalog

14.0 What appears to be the most frequently recurring problem with respect to the use of the automated book catalog?

14.1 Using a scale of 1 to 5 (1 = no problem; 5 = greatest problem) what do you consider the principal problems with respect to the use of the automated book catalog:

14.1.1 Different form of entry from that found in the card catalog __________

14.1.2 Lack of cross-references from old form of headings used in card catalog __________

14.1.3 Different filing rules __________

14.1.4 Different subject headings terminology __________

14.1.5 Lack of _see also_ references under subjects __________

14.1.6 Condensed or abbreviated entries __________

14.1.7 Lack of tracings __________

14.1.8 Identification of main entry __________

14.1.9 Identification of added entry __________

14.1.10 Other (Please describe briefly below) __________

## 15.0 Librarian Use of the Automated Book Catalog

Cataloging Branch staff endeavor to link, through an elaborate cross-reference structure, differences in form of entry or subject headings between the two catalogs, whenever possible.

If there is marked difference between the form of entry in the two catalogs, catalogers endeavor to indicate the old catalog form of entry in a note in the ABC. While it is not possible, for practical reasons, to lead the reader using the card catalog to the new form of entry in the ABC, every effort is made to lead the reader to the new entry by cross-references in the ABC. Catalogers endeavor to make corrections in the ABC when errors are brought to the attention of that unit.

15.1 Please indicate, using ordinals, the type of error that you most frequently bring to the attention of catalogers:

15.1.1 Errors in filing order ____________

15.1.2 Typographical errors ____________

15.1.3 Duplicate cataloging ____________

15.1.4 Lack of cross references ____________

15.1.5 Other (please describe briefly below) ____________

15.2 Are the errors in 15.1 above more readily discernible in the ABC than in the card catalog? Yes______ No______

## 16.0 Size and Format of the Automated Book Catalog

The automated book catalog, as of April 1978, consists of 44 basic volumes and 5 supplementary volumes.

16.1 Will space for the display of the ABC be a problem? Yes______ No______

16.1.1 If yes, indicate when

Immediately__________

Soon_____________

Years (indicate number)________

16.2 What do you believe may be viable alternatives to the present format of the book catalog: (indicate your preference by 1st, 2nd, 3rd, etc.):

16.2.1 Split book catalog (i.e., authors, subjects, titles) ____________

16.2.2 A COM (Computer Output Microform) Microfiche display of the catalog ____________

16.2.3 Microfilm cassette readers ____________

16.2.4 A Register-Index type of book catalog* ____________

16.2.5 On-line terminals ____________

16.2.6 Return to card catalog ____________

16.2.7 Other (describe briefly below) ____________

16.3 Have you encountered difficulties relating to durability of the ABC before the end of the yearly cumulation cycle? Yes_____NO_____

16.4 Is the volume size of the ABC acceptable? Yes_____No_____

16.4.1 If answer is no, please describe briefly what you believe to be an optimum size.

17.0 Comment briefly, or in detail if necessary, on the problems or advantages of the automated book catalog system that have not been covered in this questionnaire.

---

*In a Register-Index, full bibliographic information is arranged sequentially by a register number. The index consists of authors, titles, subject, in a dictionary arrangement, with only brief bibliographic information and which includes the register number for reader desiring full bibliographic information.

University of Toronto

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Some extracts from Newsletter issued by Implementation Team for Orientation and Training.

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## What Do The Words Mean?

"Closing the card catalogue" is a jargon phrase that can be misleading. Some would think it means that the card catalogue will be locked up, even taken down to the basement, never again to see the light of day. In fact it means that the Library intends to stop adding new entries in card form to the existing card catalogue. When that happens, then the catalogue can be said to be "closed". When the catalogue is "closed", it will remain in the Library and the cards in it will be kept up-to-date, so that the catalogue will continue to be an extremely valuable tool. One published definition of a closed catalogue is "one that is not having new entries added to it, but the existing entries are being maintained (corrections are being made, deletions are being deleted, etc.)." (Kenneth John Bierman Automated Alternatives to the Card Catalogue for Large Libraries: The Current State of Planning and Implementation,"June 1975.)

## What Are The Alternatives To The Card Catalogue?

The Library is planning to provide computer-generated access to the collections by means of one, or a combination, of the following:- a book catalogue, a micro-image catalogue, an on-line catalogue. A layman's explanation of these possibilities will be given in the next issue of this Newsletter; but whatever choice is made, some enormous advantages should be the outcome -

1) the capability of providing remote access to the catalogue records stored in the computer at key points around the campus- e.g. departments, professional schools etc.

2) the capability of searching for records under a wider variety of access points than merely author, title and subject.

3) the reduction of inconsistencies and inaccuracies which in card catalogue increase as it becomes older and larger

4) the reduction of the problems of maintaining an increasingly complex card catalogue.

## CLOSING THE PUBLIC CARD CATALOGUES: CURRICULUM

The Planning Decisions Group has approved a proposal for staff orientation and training: an outline of this programme (curriculum) follows. There will be three learning environments:

## A. GENERAL ORIENTATION SESSION

This will consist of a one hour lecture, illustrated with slides and transparencies, and will serve as a general introduction to the follow-up practice session. It will be given in Room 205 of the Faculty of Library Science to groups of 100+ and will be repeated for all staff members. Tentative bookings of Room 205 have been made for the week of April 26th.

### Programme and Panel Participants

Introduction:-

| | |
|---|---|
| - Purpose of session<br>- Overview of UTL system<br>- Advances in Library Computer Technology | A member of IT for Orientation and Training |
| - Catalogue Information in machine readable form | A Department head from Technical Services |
| - The implications of computer access to catalogue information | A member of IT for Data Base Integration and Application |
| - The impact of the new technology on library jobs | A member of Planning Decisions Group |
| - Question Period | |

## B. PRACTICE (HANDS-ON) SESSION

(1) small groups (less than 10) to meet in Robarts Room 6003, the former Card Production workroom, These groups:-
  - should be homogeneous (from same section or department)
  - their leaders should come from peer group - chosen by department or section heads
  - should include resource persons (if necessary)

(2) Sessions should be adapted to needs of individual groups (divided into three levels):-

  (a) basic - for those who do not use catalogues in their daily work

  (b) intermediate - for those who use catalogues sporadically

  (c) advanced - for those who use catalogues regularly as function of their jobs

(3) In a practice session lasting approximately one hour, each staff member:

  (a) will review (from General Staff Orientation Session) implications of computer access to catalogue information, and receive additional instruction

(b) must demonstrate his/her mastery of the three forms of catalogue information: microform, print form and on-line, by successfully searching for several types of catalogue entries

(4) Extra practice sessions will be provided for staff members who want or need to experiment further with any of the new catalogue formats.

(5) Scheduled to be held regularly throughout May and June.

C. FEEDBACK SESSION

(1) To consist of same groups as in practice sessions

(2) To provide opportunity for staff members to discuss their responses to increased library automation and any problems they have with the new system

(3) To be held soon after the practice sessions

New York Public Library
May 1977

THE NEW YORK PUBLIC LIBRARY TECHNICAL ORDER 77-3-0053- 1

PREPARATION SERVICES May 16, 1977.

PROJECT RETRO - 1

## PROJECT RETRO

This is the first of a series of Technical Orders on Project RETRO. The purpose of the series is to provide guidelines for the instruction of Project RETRO staff and to inform Library staff regarding procedures, objectives, and progress of the Project.

1.0 Definition.

1.1 In its broadest sense, Project RETRO has consisted of the closing of the official and public catalogs of The Research Libraries as of January 1972 and the publication in book-form by G. K. Hall of most of the card catalogs of divisional and special collections. It has consisted also of the preservation microfilming of the Official Catalog, the retrospective Topical Subject Headings Authority File, and the Geographic Names Authority File available on cartridges in Cataloging Branch and Acquisition Division.

1.2 In its present and primary context, Project RETRO consists of the physical rehabilitation of the main Public Catalog located in Room 315. The main Public Catalog is being prepared for preservation microfilming. The microfilming of the catalog is the first step in the production of a catalog in either book or microform format.

2.0 Objectives.

2.1 The immediate objective of the Project is to preserve the main Public Catalog.

2.2 A primary consideration is the restoration of missing bibliographic data on catalog cards, especially classmarks, to as many access elements as possible. A minimum requirement of the project is to reinforce classmarks, or supply missing classmarks on all main entry cards. Though it would be desirable to rehabilitate every card in the entire catalog needing rehabilitation and to provide a classmark on every card as well, there are limitations on resources and the time frame within which the project must be completed. These factors have made it necessary to impose some constraints on the extent of the rehabilitation that can be considered and undertaken. Whenever it becomes necessary to place limitations on the amount of rehabilitation that can be considered, these constraints will be described in later Technical Orders of this series.

2.3 Project RETRO consists of a physical, not an intellectual rehabilitation of the Public Catalog. While the Public Catalog is a bibliographic tool consisting of much scholarship and excellence, it is not without certain inconsistencies, contradictions, and some obsolescence of terminology. The content of the catalog has nevertheless served librarians and readers well for many decades. It is not an objective of Project RETRO to revise the content of the catalog or to make any descriptive, subject heading, or classification changes by means of recataloging.

2.4 The publication of the main Public Catalog in book catalog, or other format, is the ultimate objective of Project RETRO. At the present time, sufficient funds are not available for publication of the catalog in book form. Present funding is sufficient to carry the project through rehabilitation and filming only. When and if funds do become available, it is estimated the book catalog would consist of approximately 900 volumes.

3.0 Staffing.

3.1 The Project is to be fully staffed within the period of one year. Eighteen full-time employees are to be used on the Project in addition to administrative staff in Preparation Services who will devote less than full-time to the Project.

4.0 Funding.

4.1 Project RETRO is presently being funded by grants from the Andrew W. Mellon Foundation and the National Endowment for the Humanities. Announcements of fund raising for Project RETRO will usually appear in other media.

5.0 Time Frame.

5.1 Present planning has projected a target for the completion of the Project in four year's time, on/or about December 31, 1980.

AJH:ESF.

Distribution Code: 1
Extra Copies : Project RETRO - 25

Cornell University
July 1978

# The Assumption of Automation

## or: The Card Catalog is Dead! Long Live the Card Catalog!

Dan C. Hazen

Academic libraries throughout the land are abuzz with deliberation over the future of their card catalogs. Cornell is no exception. Our initial response, the report by the Task Force on the Future of the CUL Card Catalogs,* constitutes an impressive effort to confront the imponderables of the future, and merits our applause for both the energy and the spirit with which it was compiled. The report demonstrates the extreme complexity of the issues at hand, and exhaustively documents actual and potential costs of existing systems.

Nonetheless, the Task Force report fails to convince in its general recommendations that immediate movement toward automation comprises our only viable alternative. While we would all doubtless agree that our principal goal lies in meeting the information needs of Cornell's scholarly community, it is less obvious that mechanization now affords the most satisfactory means to this end. The Task Force's conclusion derives from several clusters of suppositions which, unfortunately, are both untested and in large measure untestable.

It is far from obvious that a chain of reasoning founded on unsubstantiated assumptions can constitute a compelling case for library automation: the edifice may be sound, but it may also only be a house of cards. The assumptions which have not been explicitly justified may well be correct and susceptible to proof. Alternatively, other reasons may exist to support the Task Force's recommendations. The purpose of this note is to stimulate the commentaries and data which would so indicate.

Four sets of suppositions underlie the conclusion that we must immediately mobilize for systemic automation:

1) Library automation is inevitable;
2) The card catalog is on the verge of collapsing under its own weight, a delicate condition which only automation can remedy;
3) The Library of Congress is and will remain the model for library practice and procedure, and drastic transformations will occur in each of these after 1980;
4) Cornell will lose status

**Author's note**, July, 1978

**This essay, drafted in the winter of 1978, reflects both the general state of knowledge and the author's interpretation of local conditions at that time. Since levels of knowledge and discussion continue to rise, the essay's current meaning is as much historical as substantive.**

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*Editor's note: Copies of the report are available for sale at $2.00 (prepaid) from the Budget and Accounting Office, 234 Olin Library.

> as a vanguard automator if we are not among the pioneers of integrated on-line systems.

Though none of these assumptions can be absolutely disproved, their substantiation is equally problematic. By accepting these hypotheses as postulates, we have been encouraged to accept a scenario by which automation is our only hope. If the hypotheses are faulty, so may be the predictions based upon them.

A first Task Force assumption, and one apparently general throughout the profession, is that library automation is imminent. Computerized systems do have the data manipulation capabilities required in information systems as complex as libraries, and this technical capacity far outstrips that of any manual system. Were theoretical plausibility the only relevant consideration, immediate commitment to automation would clearly be in order, and librarians could be faulted for any hesitation or delay. In the unhappy realm of reality, though, the theorist's benign vision of an efficient and all-encompassing computerized system confronts a wide range of limitations and constraints. The Task Force itself has declared that "...technology cannot yet offer an affordable substitute equal to the present card catalog" (p. 4). The means exist in theory, but remain beyond our practical grasp. Moreover, even if economically attractive and programatically adequate hardware and software were readily available, the resources required to load the resultant system would be phenomenal. Adoption of new technology may be inevitable, but the timing of this inevitability must remain cost-dependent.

A corollary to the inevitability of automation maintains that an automated system must naturally move toward appropriation of all compatible library functions (e.g. acquisitions, serials control, cataloging, circulation, reserve, accounting, access to on-line data bases, etc.). Once again, we are assured that the computer's theoretical capability to control such operations constitutes adequate grounds for embracing a mechanized approach. In some ways, one can find a parallel with the early days of urban renewal: city planners drew on new theories of urbanization and changing construction technology to plan vast redevelopment schemes. Their Brave New Urb proved far more elusive than anticipated, in large part because their plans failed to account adequately for the imponderables of human responses. Some of the same overreliance on technology seems to typify our headlong rush toward library automation.

Although assumptions regarding the short-term inevitability of library mechanization remain unproven, cybernetic trends do make economically feasible technology appear to be an eventual certainty. The question is when, rather than whether.

The second cluster of Task Force hypotheses appears less clear-cut. The existing card catalog is depicted as an information monster, which only automation can tame. At least two elements contribute to this supposition: that access more or less as provided in the card catalog constitutes the most efficient mode for conveying bibliographic information; and that automation will restore this mode to an acceptable level of efficiency.

The catalog card, and the

card catalog, were created for particular reasons at a certain point in time. They are human and historical products, neither of which embodies ultimate wisdom or Truth. Beyond short-term convenience, there are no inherent reasons to justify this system's mechanical replication. Particularly for subject access, new techniques of key-word indexing, as well as more adequate thesauri, are now on the horizon. While the Task Force report acknowledges such potentials, it also argues that increased rates of changes in LC subject headings--which will be facilitated by automation in Washington--will overwhelm any manual system. The implication is that subject access will continue to depend on lists of standardized headings. In other words, our real options remain traditional. We may have the ability to automate a dinosaur, but it's not entirely clear why we should want to.

Perhaps more to the point, much of the argumentation for automation reflects an apparent capitulation before the card catalog's immense size and complexity. Statistical evidence of the most arcane sort (some students have even documented the distances paced by card filers in large libraries) is employed to hammer away at the card catalog. We are then, for instance, assured that search times in an automated file will be significantly shorter than those exacted by a large card file. Unfortunately, no evidence is provided. (In fact, the limitations on author searches via OCLC once again suggest that technical capability in no way guarantees actual accessibility. Even were such searches possible on a regular basis, staring at screen after screen of "Smiths" might well prove no more satisfying than thumbing through card after card in the union catalog.)

Assertions that we must automate because the card catalog has finally defeated us by virtue of its superior cost and complexity can only become convincing when complemented with hard evidence on the cost and utility of available alternatives. The obvious fact that it costs money to sustain a large card catalog has been, in general, too cavalierly presented as an argument sufficient unto itself for justifying an automated world of effortless access to a bibliographic record equal or superior to that now available. If it is uncertain whether automation will be most fruitfully applied to information reducible to, or derived from, the catalog card format, it is no less uncertain that an automated system would in fact compete favorably with the card catalog, in terms of either economics or service.

Once again, a parallel might be drawn with the ideology of urban renewal. Card catalog blight--extending even to such details as the deteriorating physical condition of catalog drawers and card stock--is eroding the academic library. Technological solutions, long gospel for our cities, and for which total costs were unknown and probably unknowable, are being incanted to reverse our once creeping and now rampant bibliothecal affliction. However, as the lesson of our cities may suggest, caution is in order.

The clusters of untested assumptions involving the inevitability of automation, and the futility of even attempting to sustain the card catalog, provide a general mandate for automation. They do not, however, convey any time urgency. Two other arguments have been adduced to provide this dimension. The first anticipates developments at the Library of Congress; the second appeals to staff loyalty and local pride.

Early automation is largely urged upon us on the basis of expectations, or fears, of what the Library of Congress may do. We are told to expect changes both instantaneous and drastic when LC closes its card catalog in 1980. The effects of AACR II, and even more those of desuperimposition and new subject headings, are presented as impending realities which will simply overwhelm any manual system. It is impossible to disprove such pessimistic forecasts. On the other hand, it is clear that this prognosis at once accepts a total systemic dependency on LC practice, and assumes that LC will initiate intense and immediate changes in that practice.

In fact, even though the Library of Congress retains its goals of automation, it appears to be retrenching on its timetable. Plans to generate machine-readable alphabets for non-Roman scripts continue to suffer delays, and the Library recently revealed its "contingency plans" for initiating new card files in 1980 in case its automated system is not then ready (Library of Congress Information Bulletin, March 3, 1978). The very existence of such plans suggests that the automation effort is behind schedule. The implications of the mystery clauses in AACR II, desuperimposition, and new subject headings may be drastic, but the logistical and technical problems which are plaguing LC in these and other efforts may dilute the impact. Moreover, if LC's innovations are forced through without adequate planning and trial at that institution, with all of its resources, it would indeed be folly for one of its poor cousins to blindly follow suit.

Related to the last point is the continuing and facile assumption that LC is a library leviathan which inexorably compels total conformity from any and all creatures within its grasp. Many libraries, both locally and abroad, appear to have survived in the absence of absolute adherence to LC initiatives. Particularly if subject access in future LC systems relies on only a revised list of subject headings, the Library of Congress will itself be in danger of archaistic automation. We must not assume that following along will always be our best option.

A final, emotional argument which has been cited to prod us toward early automation maintains that Cornell was a leader among library automators in the late 1960's, but that financial cutbacks in the 1970's have undermined our once-enviable position. Quite apart from mechanization's theoretical and practical dimensions, support for innovation is implicitly tied to loyalty to Cornell. In fact, the Task Force's references to such activities as CONSER, ISIS, SPINDEX, etc., suggest that we have not entirely dropped out of the library automation picture. More important, the appropriate question is not whether new systems will boost the image of Cornell, but rather whether they will best serve the Library and its users. Returning to the urban renewal parallel, technocratic appeals to local pride were often employed to quell the cautious and to divert attention from substantive issues. Any tactical parallels would be unacceptable here.

To this observer, the arguments presented for immediate movement toward closing and automating Cornell's card catalogs are far less compelling than a quick perusal of the Task Force report might suggest. It is uncertain that library automation is either possible or inevitable in the short term (say, the next five years). It is uncertain that the information afforded by the catalog card, or the card catalog itself, provides an ultimately efficient mode of bibliographic access and control. It is uncertain that practicable technological alternatives to the card catalog can be either less expensive or more flexible than the card catalog. It is uncertain that, beginning in 1980, the Library of Congress will overwhelm the profession with new practices and procedures. It is uncertain that LC must forever remain the sole arbiter of cataloging practice and subject access. And it is uncertain that Cornell's reputation will suffer if we are not among the pioneers of new structures.

These doubts do not justify passivity or inaction--they only suggest that the consequences of failure to automate by 1980 are far from clear-cut. Experience and information are sadly lacking. In this situation, we might most profitably build incrementally on existing activities and experience, rather than hoping to generate a new and comprehensive system from scratch. If automation does become both technically and economically feasible, we should be prepared to innovate. But the existing arguments for automation, to the extent that they derive from the assumptions herein described, are inadequate.

There may be other good reasons for immediate automation, and there may be data available to substantiate some of the assumptions which now seem uncertain. The purpose of this essay is to provoke the responses which would so indicate, and to appeal for their dissemination in future issues of the Bulletin. An innovation as sweeping and exciting as widespread mechanization should be undertaken in a spirit of cooperative enterprise and mutual understanding. By substantiating our assumptions and expectations, such consensus should become possible.

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Dan C. Hazen is presently Latin American Librarian at Cornell.

CARD
CATALOG
DIED
1980?

# NOW IS THE TIME...OR; HOW I LEARNED TO STOP WORRYING AND LOVE AN AUTOMATED CATALOG.

EDWARD WEISSMAN JULY 3, 1978

SUBMITTED FOR PUBLICATION IN THE BULLETIN PUBLISHED BY THE CORNELL UNIVERSITY LIBRARIES. NO. 208, APRIL-JUNE 1978.

Automation in the Cornell University Libraries is currently a subject of controversy. Recommendations calling for the automation of the library catalogs and other library functions elicit skepticism and anxiety. As Dan Hazan argues in his thought provoking article "The Assumption of Automation or: The Catalog is Dead, Long Live the Card Catalog" (Bulletin, Jan.-March, 1978):" While we would all doubtless agree that our principle goal lies in meeting the information needs of Cornell's scholarly community, it is less obvious that mechanization now offers the most satisfactory means to this end." Yet, he cogently concludes that "The question is when, rather than whether." As a member of the Task Force on the Future of the Cornell University Libraries Card Catalogs, I would argue that "when" should be now. This is the right time to begin the process of automation in the libraries that will lead to an on-line catalog. There is necessarily a significant investment required by the Cornell libraries to implement an automated system and it is of critical importance that the expenditure be justified by improvement in service and bibliographic control. If our approach is careful and well planned, this can be achieved.

Automation in libraries is not a brand new development. Considerable work has been done over the past thirty years. Earlier efforts concentrated on the automation of discrete library functions such as cataloging serials, acquisitions and circulation. The Library of Congress concentrated its early effort on the design of a format for machine-readable bibliographic records and their distribution to other institutions. The MARC format

# Now is the time ... or; how I learned to stop worrying and love an automated catalog.

Edward Weissman
July 3, 1978

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is a method of organizing bibliographic information so that it can be identified and manipulated by computer. The MARC Pilot Project, which ran from 1966 to 1968 gave the Library of Congress and the twenty participating institutions, Cornell among them, an appreciation of some of the problems associated with using computers as a tool in a library environment. It also resulted in the development of a machine-readable format, the MARC II communication format, allowing the Library of Congress to begin general distribution of MARC tapes in March 1969.

The availability of a large number of high quality machine-readable bibliographic records stimulated automation efforts. MARC records produced by the Library of Congress form the nucleus of shared cataloging systems such as OCLC. However, over half of the MARC records now produced in the United States are being generated outside the Library of Congress, indicating that the use of automated systems is becoming widespread in the library community.

More recently, emphasis has shifted towards the concept of integrated library computer systems, capable of supporting on-line catalogs and other library functions. A major problem in efforts to develop these systems has been the cost. The utilization of large, general purpose computers has been a significant factor in driving up costs. Most institutions can not afford to dedicate these general purpose computors to their library operations alone. Those that have tried, for example, the University of Chicago with its HERMES systems, have run into serious financial problems. Attempts by large utilities, such as OCLC, to offer member libraries integrated systems capabilities are lagging, and do not offer much promise for the near future. However, with the availability of powerful minicomputers that offer significant price-versus-performance differentials in comparison to the general purpose computers, a more economical and flexible approach to library automation is now available.

Significant work has been accomplished in the area of library automation. Although not all efforts have been successful or economical, they have provided the library community with valuable experience to build upon. The availability of less expensive hardware offers the opportunity to make library automation efforts more cost effective. It was in this context that the Task Force on the Future of the Cornell University Libraries Card Catalogs began deliberating.

The Task Force spent over two years looking into the status of the CUL card catalogs and files and the general state of library automation before reaching its conclusions and making its recommendations. It was determined that the card catalogs in the Cornell libraries could no longer provide effective and economical access to the collections. Even by devoting more resources to maintain the card catalogs and other card files, there would be an inevitable decline in the quality of bibliographic control at Cornell, and in the services that are dependent on the utilization of the card catalogs. The reasons for the increasing cost of catalog maintenance and catalog use were given in the first Task Force report and will not be repeated here.

The acceptance of AACR2 by the British Library, the National Library of Canada and the Library of Congress as well as by the library associations of the three countries has been an important factor in the Task Force deliberations. Catalog copy emanating from the Library of Congress beginning in 1980 will have significant changes, most importantly in the choice and form of entries. Like many other large academic and research libraries in the United States, Cornell has conformed as nearly as possible to Library of Congress cataloging practice. We have done this to take advantage of the large quantity and high quality of the Library of Congress' cataloging output. However we judge AACR2, it is clear that its endorsement by the national library associations of the Anglo-American library community, and its adoption by the Library of Congress provide compelling reasons for Cornell to adopt the code as well.

Cataloging according to AACR2 will require Cornell to break with current practices and close our current card catalogs. It does not require us to embark on an automation project. We simply could begin new card catalogs next to the old ones. However, given the limitations and inefficiencies inherent in card catalogs and the availability of alternatives that will allow for better service, there is strong impetus for us to begin the process of automating our card catalogs.

Automated catalogs can take three forms: book, COM (Computer Output Microform), which are microform catalogs produced directly by the computor, and on-line catalogs. All three forms offer two distinct advantages over card catalogs. First, they can be accessed from multiple sites. Book and COM catalogs can be reproduced and distributed, and on-line catalogs can be accessed from terminals connected by phone lines. A second advantage is that staff can be relieved of repetitive, time-consuming and thus costly catalog maintenance tasks such as card filing and pulling, erasing and retyping headings, etc. Analagous tasks in the automated catalogs are handled by machine. Automated book and COM catalogs, being hard copy catalogs, are generally limited to the number and choice of access points, and to the equivalent amount of bibliographic information available in card catalogs, although COM catalogs also provide access by call number. Because book catalogs cost significantly more to produce, COM catalogs are usually preferred.

On-line catalogs offer more advantages over card catalogs than the hard copy alternatives. In particular, searching capability is greatly enhanced. More data elements, for example, language, place of publication and publication date, can be used as access points. A search for items on the relationship between labor unions and international trade, published in France between the years 1940 and 1960 in the French or German language, would be considerably quicker and easier with an on-line catalog than with any kind of hard copy catalog. Subject access can also be greatly enhanced since keyword searching in appropriate fields, such as title, series statement, corporate and conference name, and subject headings might be done. This type of search is totally impractical in large, hard copy catalogs.

The factors discussed above underlie the three recommendations made by the Task Force on the Future of the Cornell University Libraries Card Catalogs to the Director. The recommendations call for:

1. closing the current card catalogs in 1980, when AACR2 is adopted;
2. developing a data base of machine-readable bibliographic records and the capability of accessing them in an on-line, interactive mode, and;

3. using the data base as the core of an integrated library automation system. Acquisitions, cataloging, serials management and other library management functions, as well as an on-line catalog would function as subsystems, each drawing on particular subsets of information from the data base.

The data base would contain a bibliographic record for each item in the library system. When an item was ordered, a machine-readable record would be created in the Acquisitions Department containing whatever bibliographic information was available, e.g. title, place of publication and publisher. In addition, other data needed in the acquisition process, such as vendor number, date of order, etc. would also be input and linked to the bibliographic record. When the item was received, catalogers would add to the same record the bibliographic data that was not known at the time the item was ordered, e.g. date of publication, collation, series statement, etc. In addition access points, such as the main and added entries, subject headings and call number, and location and holdings information, would also be input and linked to the bibliographic record. Because the catalogers would use the same record that was generated in the Acquisitions Department, this approach eliminates the redundancy that now exists when three discrete "records" are created in the acquisitions and cataloging process: a punch card that generates the in-process status list, an AQ2 form , and a catalog card, each containing some of the same data elements but "input" three different times.

By defining which data elements are needed in the acquisitions process, the cataloging process, and the catalog itself, the computer can retrieve and display the appropriate information in response to a query. Thus a search for an item through the "acquisitions subsystem" would, result in a display of information which would be different from the display for the same item in the "cataloging subsystem."

The above discussion attempts to illustrate how a data base acts as the core of an integrated library computer system. The catalog and other library functions can be viewed as subsystems of the total system, utilizing subsets of information in the data base. However, an on-line catalog, while conceptually similar to the other subsystems is more difficult and expensive to implement. This is due to the fact that the volume of queries is likely to be much greater and the nature of the queries more complex and time consuming in the on-line catalog than in the other subsystems. This makes it reasonable to plan to implement the other subsystems first, to build up the library system from the simpler to the more complex. Thus, the Task Force views automating the card catalogs as part of the larger task of automating the interrelated technical processing functions in the libraries. To do otherwise would be short-sighted.

However, this approach requires a significant amount of time, effort and money. There are no ready made systems that can be installed while we merrily pursue other tasks, nor are there likely to be in the near future. With the adoption of the new cataloging code less than two years away, it is highly unlikely that an on-line catalog could be in place even if we started work on it today. Too much lead time is required. Currently, our options for 1980 seem to be to begin new card catalogs or to switch to COM catalogs, which can be produced from our OCLC archive tapes. The best choice might well depend on the automation plan we adopt and how far along we are in implementing it.

One such plan is the proposal by William Treat, "A Plan for Making the Transition from the Card Catalog to the On-line Computerized Catalog (Draft)", presented as Appendix 8 of the Task Force Report. The Treat proposal is based upon the Minicomputer Library System (MILS) developed at the University of Minnesota Biomedical Library. As mentioned earlier, minicomputers offer an advantageous price versus performance ratio in comparison to large, general purpose computers and make the purchase of a computer possible for an individual library. The proposal calls for the purchase of a minicomputer and the implementation over a five year period of an automated monograph and serials cataloging system, automated authority files, an automated acquisitions system, an automated serials management system, an automated bindary management system and, if desired, a microform catalog. The software for these systems has been developed and the work at Cornell would involve adapting it to a more powerful minicomputer which could function more effectively in a large, research library environment. This proposal would allow for the gradual automation of processing in the Cornell University Libraries. Staff would become familiar with terminology, concepts, and procedures and an environment conducive to the implementation of an on-line catalog would be established.

The Treat proposal calls for spending one million dollars over five years. But whether this proposal is accepted or not, automation will be expensive. This is particulary true during the early stages when hardware is purchased and development work goes on. Nevertheless, it is possible that day-to-day operating costs will be higher with an automated system than if automation were not attempted at all. Automation should not be viewed as a way to save money. Rather, it should be seen as a way to make significant improvements in the bibliographic control of the collections and in the information services that can be provided. Given the alternative, a continuing degradation of bibliographic control and service, at an increasing cost, it is clear that we are going to have to face the costs of automating sooner or later.

Finally, in addition to an in-house library management system, membership in a network is desirable. A network would consist of a cluster of libraries, each of which could communicate directly with a central computer or computers. This would enable member libraries to share bibliographic data among themselves. The central network computer would also function to access information for members which originates outside the network itself. However, the prospect of a central network computer totally managing the array of automated functions for one or a group of major research libraries does not seem promising. Lack of flexibility would be a major problem. Rather, a computer in each member library which would both manage the library's internal functions and act as a terminal to access the central network computer is a more appropriate configuration. Fortunately, the price and capabilities of minicomputers make this feasible.

Since there is a good chance that the Research Libraries Group (RLG) soon will solicit the membership of Cornell and other research libraries, a careful analysis of their automation plans is in order. The decision to join RLG must be based on a variety of factors, but the cost of their automation effort could represent the most expensive aspect of membership. Currently, RLG is investigating the feasibility of modifying and enhancing the BALLOTS system which was developed at Stanford University. It is hoped that they are taking into account the potential role that minicomputers can play. More specific information about RLG's automation plans is needed as quickly as possible so that we can make an adequate evaluation.

The time when we must close our card catalogs nears. An on-line catalog is a superior alternative. However, it requires a considerable amount of lead time, not just for development, but also to create an environment conducive to successful implementation. Without a committment to an automation plan, we can only react in a short-sighted way to developments around us, such as the adoption of AACR2. With a plan, we can make more rational decisions about important subjects, such as the nature of an interim catalog in 1980. The longer we wait, the higher the price we will pay. The card catalog is an expensive dinosaur. The cost of deferring the automation process is the cost of providing information services that are not as good as they could or should be.

# BIBLIOGRAPHY OF RECENT JOURNAL ARTICLES AND MONGRAPHS ON THE CURRENT STATUS AND FUTURE OF LIBRARY CATALOGS

Compiled by James D. Anderson for the METRO Symposium on Closing the Catalog: Automated Alternatives to the Card

September 1977

## INTRODUCTION

The works in this list were located through Library Literature, recommendations from colleagues, references in other works, and announcements in professional journals. This is certainly not an exhausitive list. No attempt has been made to include the voluminous literature on book catalogs which has appeared during the last decade. Works preceded by an asterisk (*) were not seen or reviewed. The citation style is taken from the abbreviated version of the American National Standard for Bibliographic References, ANSI Z39.29-1977 (Mount, Ellis. A national standard for bibliographic references. Journal of the American Society for Information Science. 28(1): 3-12; 1977 January). If this is going to be a standard style, then we might as well start getting used to it.

## PART I: BACKGROUND

(1) The future of card catalogs: report of a program sponsored by the Association of Research Libraries, January 18, 1975. Washington: Association of Research Libraries; 1975. 67 p.

> Focuses on problems of enormous catalogs formed over many decades in accordance with several different codes. Such problems include: size, deteriorating cards, filing errors and inconsistencies, conflicts in headings and references, obsolete and missing references, missing cards, superseded cards not removed, and the increasing cost of maintaining and continuing these catalogs. Representatives of the Library of Congress and other research libraries discuss the background and source of these problems, current conditions and possible solutions. Emphasis is placed on possible relationships between old and new catalogs, with little attention given to the technology of catalog formats (e.g. COM, book, or on-line catalogs), although on-line catalogs are seen as contributing to an eventual solution to present problems.

(2) Daniels Ganning, Mary Kay. The catalog: its nature and prospects. Journal of Library Automation. 9(1): 48-66, 1976 March.

> A summary of papers delivered at a symposium held Oct. 9-10, 1975 and sponsored by the Information Science and Automation Division, the Reference and Adult Services Division and the Cataloging and Classification Section of the Resources and Technical Services Division of ALA.

Theoretical and policy questions are emphasized, rather than details of new technology and catalog formats. Now familiar controversies are raised, such as the role of "main entry" in automated catalogs (Seymour Lubetzky), simpler description, preferably without ISBD punctuation, for non-research libraries (Joan Marshall, Marvin Scilken, Hugh Atkinson), inadequate subject access (Marshall), the need for authority control in order to gather bibliographically related works together (pro: Lubetzky, Michael Malinconico, William J. Welsh; con: Fred Kilgour, Hugh Atkinson).

The full proceedings of this valuable symposium were promised, but have not yet appeared. In the meantime, this summary is an excellent review of current opinion relating to library catalogs in this era of transition. Shorter summaries are provided by Maurice Freedman and John James (see entries below), and an abridged version of Michael Malinconico's paper appeared in Wilson Library Bulletin (see next entry).

(3) *Malinconico, S. Michael. Library catalog in a computerized environment [abridged from a paper delivered at an institute on The catalog --its nature and prospects]. Wilson Library Bulletin. 51(1): 53-64; 1976 September. Comment by A. D. Hogan, with rejoinder. Wilson Library Bulletin. 51(9): 724-725; 1977 May.

(4) James, John. Conference on the catalog held. Library of Congress Information Bulletin. 35: 149-152; 1976 March 5.

A briefer summary of the same conference described by Daniels Ganning. See entry under her name.

(5) Freedman, Maurice J. The catalog: its nature and prospects. Library Journal. 101(4): 594-595; 1976 February 15.

Another brief summary of the same symposium described in more detail by Daniels Ganning. See entry under her name.

(6) Rather, John C. The future of catalog control in the Library of Congress. Journal of Academic Librarianship. 1(2): 4-7; 1975 May.

This paper is also included as Appendix B in The Future of card catalogs (Washington: Association of Research Libraries; 1975). See entry (1).

Excellent discussion of the automated cataloging system which LC plans to implement by 1980. After describing its advantages, attention is shifted to the disposition of the present card catalogs. Rather advocates complete disassociation between new and old catalogs ("cutting the Gordian knot") and considering the MARC data base to be complete in itself for cataloging purposes, so that new name, title and subject headings would not have to be compared or connected to those in the old card catalogs. A good review of the problems facing libraries with enormous retrospective catalogs.

(7) McElderry, Stanley. Alternatives to the conventional card catalog from the user point of view. IFLA Journal. 2(4): 232-236; 1976.

A paper presented by the University Librarian, University of Chicago to an IFLA gathering. Reviews the transition from sheaf or book catalogs to card catalogs, back to book catalogs, and now to computer produced book, microform and on-line catalogs. Points out that "the primary motivation for changes in the format of the catalog has been product oriented more than it has been consumer or user oriented" -- (p. 234-235), and that little study of user response to new catalog formats and access methods has yet taken place.

(8) *Clinic on Library Data Processing Applications, 1976. Economics of library automation. Edited by J. L. DeVilbiss. Urbana: University of Illinois, Graduate School of Library Science; 1977.

Includes "Economics of data conversion" by Michael Gorman, "Economics of book catalog production" by Maurice J. Freedman, and "Economics of output media" by S. Michael Malinconico.

(9) *University of California, Berkeley. Study Group of the Committee on Bibliographic Control. Future of the general library catalogs of the University of California at Berkeley: report--phase 3. Berkeley: University of California General Library; 1977.

The Study Group "proposes a plan of action for providing public and staff access to a unified bibliographic data base, built in machine-readable format and using the BALLOTS system, phased in over an eleven-year period. The primary means of access to data for both public and staff proposed is on-line, combined with computer output microform auxiliary lists, such as back-up data. The plan proposes closing the present card catalogs and the conversion of retrospective bibliographic data. Information on costs of the system and the necessary equipment, as well as projected cost savings and benefits, is provided.

"Copies of the report are available to individuals and to other libraries at a cost of $3 per copy. Requests should be addressed to: The Librarian's Office, University of California General Library, Berkeley, CA 94720. Prepayment is requested; checks should be made payable to the Regents of the University of California" -- (College and Research Libraries News. (5): 152-153; 1977 May).

(10) Cramer, S. A. The computerised catalogue in a university library. Libri. 26(1): 38-53; 1976 March.

Reviews the purpose and current status of, and the impact of automation on, catalogs, bibliographic description, subject analysis, accession numbers, the physical format of catalogs, and costs from a British perspective. Comments on user surveys, access to computer facilities and the MARC project as they influence automation of both current and retrospective catalogs in British libraries. An appended list of 66 references concludes with a 1969 work by J. L. Dolby, V. J. Forsyth and H. L. Resnikoff, who are quoted as saying that "the mechanization of the cataloging function is not only necessary and desirable, but also inevitable"--(Computerized library catalogs: their growth, cost and utility. Cambridge, Mass.: M.I.T. Press; 1969: p. 16).

(11) Elrod, J. McRee. Is the card catalogue's unquestioned sway in North America ending? Journal of Academic Librarianship. 2(1): 4-8; 1976 March.

After reviewing problems created by large card catalogs (size, inconsistencies, physical condition, demands on staff time, boring and repetitive operations, revision of headings), the author describes possible solutions, opting for a computer-based COM catalog. Reports the work of a task force assigned to design a COM catalog for the University of British Columbia and its proposals. Summarizes many of the findings and conclusions reported in the Association of Research Libraries symposium on "The future of card catalogs" (see entry (1), especially those presented by Library of Congress representatives).

## PART II: NEW TECHNOLOGY--NEW SOLUTIONS

(12) Freedman, Maurice J. Automated network catalog products and services. Journal of Library Automation. 9(2): 145-155; 1976 June.

Based on a speech given at the institute on "Networks and networking; or how to automate without doing it yourself," New Orleans, February 1975, sponsored by the Information Science and Automation Division of ALA. Discusses the advantages and disadvantages of on-line cathode-ray-tube (CRT) display, the line-printer produced catalog card, the photocomposed book catalog or catalog card, and the computer-based microform catalog, and describes examples of actual applications in libraries. A good review of the current alternatives.

(13) Freedman, Maurice J. The automation of cataloging--1976. Library Trends. 25(3): 703-721; 1977 January.

Reviews recent activities contributing to the automation of cataloging. Makes a sharp distinction between "automated catalog support systems" such as OCLC, which produce entries for catalogs but perform none of the integrative functions necessary to convert a simple file of unconnected entries into a catalog and, on the other hand, automated bibliographic control systems which do tie together works by the same author, versions of the same work, and works on the same topic. Describes recent advances in bibliographic control systems which can insure uniformity of. as well as easily update, entry headings (names, uniform titles and subject or form headings). Concludes with a review of currently available automated catalog products, such as catalog cards, COM catalogs and book catalogs. A good discussion of the state of catalog automation as of 1976.

(14) Malinconico, S. Michael. The display medium and the price of the message. Library Journal. 101(18): 2144-2149; 1976 October 15.

A thorough review of the characteristics of COM and its advantages as the "display medium" for bibliographic files maintained in machine-readable form. Emphasizes the relatively low cost of COM, which permits libraries to create frequently recumulating, "self-refreshing catalogs" free of past practices, errors and inconsistencies. Recommended for all COM novices.

(15) COM applications in libraries: papers given at a seminar on the use of computer output onto microform by libraries, held by the Microfilm Association of Great Britain, University of Aston, Birmingham, 4th July 1973. Chairman: B. J. S. Williams. Edited by William D. Linton. Guildford: Microfilm Association of Great Britain; 1974. 41 p.

Papers include a general description of COM and reports of specific applications in British libraries for displaying catalog information. Brief discussions follow each paper, and the proceedings conclude with a general wrap-up session. A good introduction, in spite of occasional parochialisms.

(16) Spencer, John R. An appraisal of computer output microfilm for library catalogues: the final report on the findings and work of an investigation from December 1971 to July 1973, grant aided by the Office for Scientific and Technical Information and directed by B. J. S. Williams. Hatfield, Eng.: National Reprographic Centre for Documentation, the Hatfield Polytechnic; 1974. 108p.

A detailed, technical review of COM as a medium for library catalogs, including case studies of COM catalogs in five British libraries. Includes a glossary and an extensive bibliography.

(17) *Diaz, Albert, ed. Microforms and library catalogs: a reader. Weston, Conn.: Microform Review; 1977. ISBN 0-913672-16-5 $17.50.

Announced in Microform Review, 1977 January, p. 62.

(18) *National Micrographics Association. COM and its applications. Silver Spring, MD.: National Micrographics Association; 1977. 192 p. $4.50 for NMA members, $6 for non-members.

"This 192-page compendium of thirty-two articles about COM represents the most outstanding COM articles that have appeared in NMA's Journal of Micrographics over the last three years"--(College and Research Libraries News. (4): 108; 1977 April).

PART III: IMPLEMENTATION

(19) Bierman, Kenneth John. Automated alternatives to card catalogs: the current state of planning and implementation. Journal of Library Automation. 8(4): 277-298; 1975 December.

Based on an extensive survey of libraries actively engaged in planning for and/or implementing new, computer-based cataloging systems. Discusses reasons libraries are interested in converting their catalogs and describes specific examples of operational computer-based catalogs and alternative approaches. Concludes with five predictions, a long list of references, and a list of libraries surveyed. A good overview of the situation in North America as of 1974. A brief summary of this report appeared in Catholic Library World (47: 74-75; 1975 September).

(20) Meyer, Richard W.; Knapp, John F. COM catalog based on OCLC records. Journal of Library Automation. 8(4): 312-321; 1975 December.

Describes a functioning microfiche catalog at the Univeristy of Texas at Dallas. Most cataloging data is input via OCLC and then sent to Blackwell North America for merging into the library's catalog data base. Authority control over subject headings is provided, but control for author and title headings is not discussed. The catalog is output in four sections (author, title, subject and shelf-list) in an annual cumulation plus cumulating bi-weekly supplements, so that only 2 files must be checked for any search. A good description of how one library does it.

(21) Green, Robert H. Microform library catalogs and the LENDS microfiche catalog. Microform Review. 4(1): 30-34; 1974 January.

After a quick review of book and traditional microform catalogs (i.e. photographed from cards), describes the advantages of a computer-based COM catalog. Reports results of a study of user response to the LENDS microfiche catalog of Georgia Tech. Beware of a printer's error on p. 32, where several paragraphs are out of order!

(22) LeCroissett, Jill C. Microfilm catalogs in a British public library system. Microform Review. 4(2): 104-107; 1975 April.

Describes implementation, current status and user response to a COM catalog in microfilm cassettes in a large public library system of many branches. Suggests that "for libraries in the United States that are faced with the problems of preparing and distributing lists of holdings or multicopy catalogs, there seem to be many advantages in the kind of microform catalogs now in use in British libraries"--p. 106.

(23) *Fischer, Mary L. The use of COM at Los Angeles Public Library. Journal of Micrographics. 6(5): 205-210; 1975 May.

(24) *More libraries switch to COM catalogs. Library Journal. 102(6): 672-673; 1977 March 15.

UNIVERSITY OF TORONTO

1978

Information programs on COM catalogs at the University of Toronto are held Friday mornings. Persons wishing to visit the library can contact Carolyn Murray, Coordinator of Library Instruction.

## SAMPLE PROGRAM

February 24, 1978

### PROGRAMME

| | | |
|---|---|---|
| 10:15 - 10:45 | Introduction: Management experience | Maureen Hutchinson<br>Associate Librarian<br>Reader Services<br>978-2298 |
| 10:15 - 10:45 | Technical aspects of conversion | Valentina de Bruin<br>Library Systems Analyst and Coordinator<br>978-2398 |
| 10:45 - 11:15 | Staff and User orientation | Carolyn Murray<br>Coordinator of Library Instruction<br>978-2498 |
| 11:15 - 11:30 | COFFEE | |
| 11:30 - 12:00 | Reference & Information aspects | Carol Weiss<br>Head of Reference - Robarts<br>978-2285 |
| 12:00 - 12:30 | Equipment - Selection & assessment | Michael McCahill<br>Special Projects Librarian<br>978-6953 |
| 12:30 - 1:00 | Demonstration - Questions | |

Johns Hopkins University
June 1978

# CLOSING THE CATALOG -- SELECTED RESOURCES

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Change Magazine. New Rochelle, NY: Educational Change, Inc. Monthly. Articles on current concerns of academic community.

The Chronicle of Higher Education. Washington, D.C.: Editorial Projects for Education. Weekly during academic year. Useful for gauging reactions and attitudes of faculty.

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James Thompson, Virginia Stout
The Johns Hopkins University
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